ARTISAN

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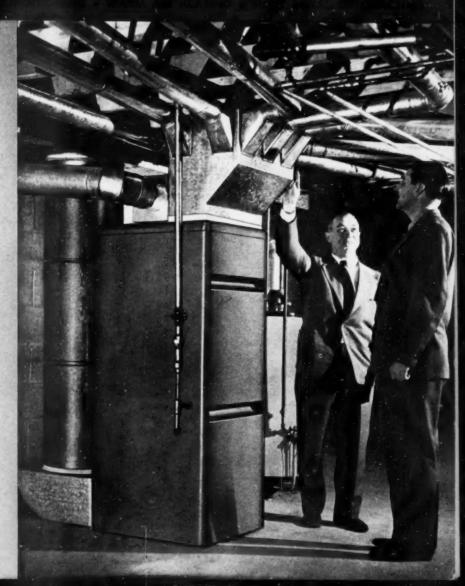
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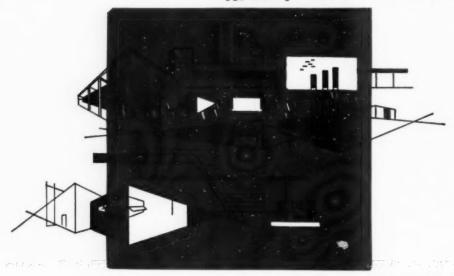
Cover Picture

NWAHACA's new tentrive Manual 10 "Small ipe Perimeter Heating" till provide contractors rith recommended intaliation procedures for his type of heating sysem.



J-C . . . THE RIGHT HEATING and INDUSTRIAL VENTILATING SYSTEM

for today's defense building program



Jackson & Church Powerated furnaces provide winter warmth and summer cooling for industry . . . in a single installation! Perfect for industrial ventilating with tempered air.

Jackson & Church dealers are meeting the demands of an expanding industry with forced warm air heating systems that save money, space, installation time and critical materials.

J-C models are available in a range of sizes to meet industrial heating requirements for the more difficult installation. Our engineering department is at your service to assist with heating layouts.

See your local J-C dealer or write today for details.

... America's Largest and Most Complete Warm Air Heating Line . . .



JACKSON & CHURCH COMPANY, SAGINAW, MICHIGAN





YOU can literally "set yourself free" from fuel restrictions, sales objections and service problems with these 4 KO-Z-AIRE Counterflow units. For thanks to KO-Z-AIRE you can now sell and satisfy the booming market of basementless homes requiring perimeter and crawl space heating. Here's why:

In the KO-Z-AIRE Counterflows, there are both gas and oil fired models available, and both can be converted from one fuel to the other. Complete safety is assured, too, as KO-Z-AIRE Gas Counterflows are Tested and Approved for Safety and Efficiency by AGA. Most models

are also listed by Underwriters Laboratories for "Zero Inches Clearance." Unusually compact and quiet, these KO-Z-AIRE Counterflows may be installed in alcoves, utility rooms or space saving closets taking advantage of the "Zero Clearance" approvals. Cabinets are beautifully finished in metallic baked enamel.

There's a big profit in KO-Z-AIRE Counterflows for dealers who ride this great trend to perimeter heating . . . for it's a big, BIG market! Send coupon below for details about these Counterflows and our complete line of winter air conditioners and warm air furnaces.



For complete information on new KO-Z-AIRE Counterflow units and profit potential of a KO-Z-AIRE franchise, mail coupon at right. No obligation.

Distributor lequiries levited

KO-ZAIRE

RED OAK, IOWA Representatives in Principal Cities

KO-Z-AIRE PRODUCTS, I Please send us details on	
☐ KO-Z-AIRE Counterfle	DW1
☐ KO-Z-AIRE complete	line of Oil and Gas Equipment
Have your factory rep	presentative cell
NAME	TITLE
FIRM	
CITY	STATE

mail coupon today

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Member—Audit Bureau of Circulations Member—Associated Business Publications



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(Cover Picture: Courtesy of the Surface Combustion Corp., Toledo, Ohio.)

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING

SHEET METAL CONTRACTING .

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metais"

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Founded 1864

JUNE 1952

Volume 89, No. 6

ALL Syncromatic GAS FURNACES ARE



at no extra cost

- PREASSEMBLED CUTS OUT SETUP COST
- PREWIRED AT NO EXTRA COST
- PRETESTED BANISHES COSTLY SERVICE

and in addition

Exclusive SYNCROMATIC patented runner flameburners — VERY QUIET operation — heat exchangers of 12GA steel — beauty in design — exceptional efficiencies built in. SYNCROMATIC — the most progressive builds only the finest for you and your customer — be an ALERT business man . . .



DON'T WAIT! — Write now for information on the furnace line that has earned the **ADMIRATION** of the industry.



75,000 and 95,000 input.

BASEMENT MODELS 75, 95, 120, and 145,000 input.

Syncromatic Corporation



Begin Early to Clean **Heating Plants**

Plan early and start work early is the advice of one heating contractor who cleaned and repaired the heating systems of 3,000 customers during one year.

By following his own advice this contractor grossed approximately \$110,000 during the season. He states, however, that "no company can do this volume of cleanings unless the work starts coming early in the summer. If this effort is not put forth until fall, no furnace company can have a crew built up to take care of the volume of work that will start coming in."

An analysis of 100 cleaning jobs performed during the month of August 1951 was cited by the contractor as typical of his operations. His standard charge for furnace cleaning is \$7.95, thus 100 jobs produce a revenue of \$795.00. Sixty-two of the jobs required extra work, for an average of \$16.42 per job, or \$1,018,04 additional.

New equipment sales and installations produced another \$1,732, for a total of \$3,545.04 for the 100 jobs.

New Metal Fusing Process

A new method of fusing metals has been developed by two skilled workers at General Controls Co., Los Angeles, it was announced by A. W. Ray, vice president and general manager of the firm, a manufacturer of automatic industrial controls.

The process will earn a bonus of over \$2000 for each of the two employees who developed it. According to the company's suggestion plan,







eligible employees who develop a new process or method which is adopted by the company, receive a cash bonus amounting to one half of the first year's savings.

The employees, D. Cantrall and C. Johnson, are brazers at General Controls, whose job is to join metals by fusing with heat. Their idea, developed after three years of research, virtually eliminates the use of complex machinery and tools for brazing, while producing a superior weld. Units per hour on one type of job jumped from about 400 to 2500 due to the new process.

Keeping the Job Sold

When Mr. Smith gave you the order to install Warm Air Heating in his new home, you had gained his confidence because he trusted your reputation as a Warm Air Heating Contractor. Don't let him change his mind when the next heating season arrives. Make a note on your business calendar to see that he gets the extra attention that customers love

Next fall, arrange to visit his new home, compliment him on how attractively it is decorated, and what fine arrangements he has made. Give his wife credit too, and then offer to explain to the whole family how the heating system works. Here are some important check

Damper location and adjust-

Grille and register clearance Cleaning the filter

Oiling the motor and other points

Annual inspection

Explain also about the benefits of continuous air circulaLOCKFORMER

Standard Equipment in large shops



....a"must" in small shops



Lockformers have long since been "taken for granted" in large sheet metal shops the country over... are accepted as standard equipment along with shears, brakes and other essential equipment.



Because Lockformers make Pittsburghs and other locks 15 to 20 times as fast as hand methods, the shop without a Lockformer is at a distinct handicap—both in bidding low enough to land the business and in fabricating the job cheaply enough to make a satisfactory profit.

Whether your shop is big or little, it boils down to this: If you work sheet metal, YOU NEED A LOCKFORMER!

Write for Lockformer Catalog













Ann Man with a fachfarmer maker more Nittchurch fachs then sistens man with finds Bushes

THE LOCKFORMER CO.

A615 WEST ROOSEVELT ROAD . CHICAGO SO, ILLINOIS

the editor's notebook

tion and the function of the control system, the thermostat setting, the fan and limit settings, and the reset on the primary control.

This good will visit will pay you dividends by saving service calls when cold weather comes, while continuing the good reputation which your firm now enjoys.

Accomplishments of plant air conditioning

Summing up briefly, the four minimum jobs done by plant air conditioning are;

1. Prevent stain-producing humidity from attacking finely finished parts during the critical assembly and final inspection period.

2. Help maintain accurate dimensional controls, which must not be affected by varying outdoor climatic conditions.

3. Free factory atmosphere from lint and dust, dirt and

4. Prevent excessive summer heat from increasing workers fatigue and lowering efficiency and morale.

Expand "selling machinery", executive advises

I. M. McKibbin, Westinghouse vice president in charge of consumer products, emphasized the need for increased sales activity in a recent speech before the Detroit Adcraft

In his remarks, McKibbin declared: "There is a . . . need for expanding America's sales plant to match the expanding physical plant. . . We must gear our selling machinery to the expansion of our production machinery if we are going to keep our factories running, our employment at a high level, and our economy healthy."

Packaged-Heat UNITS

EASY TO SELL - EASY TO INSTALL



Down-Flow

HI-BOY

for Crawl Space **Duct Systems**

This new HI-BOY was designed for small homes without basements but with crawl space under the floor for heat runs to the several rooms. Centrifugal blower discharges heated air downward around the heat exchanger surfaces into a plenum located below the furnace, and thence through 5" pipe to diffusing type registers located in outside walls. Two models:

80,000 and 112,-000 Btu. Convertible to gas firing with Fuel-Master Burner.



• Furnace • Burner • Blower • Thermostatic Controls (for burner and blower) . Supply Plenum (floor installation) • Wall Diffusing, Out-of-Wall Registers • 5" Pipe and Elbows . Starting Collars with Dampers Installed • Register Boots and Fittings . Cold Air Return Ceiling Register . Return Air Pipe and Adjustable Elbows (12" diameter) with Collar, Sheeting.

Ask for Data on Other Packaged-Heat Units.



BOY FURNACE OIL FIRED



How to Sell More

A good salesman has these characteristics:

- 1. He is sold on his product.
- 2. He knows his product. 3. He is enthusiastic about
- his product. 4. He is willing to sell any time of the day or week when he can find a prospect
- to talk to. 5. He knows the advantages of his equipment over competitor's lines.

This applies, of course, to the salesman himself. Where he is also the dealer, he has these additional qualifications which were noted from firsthand observation:

- 1. He is properly trained.
- 2. He makes good installa-
- 3. He supplies efficient
- 4. Because of the above, his customers are his boosters. They give him prospects and do a large portion of his selling for him.

-Robertson Reporter

Gas heat for New York residential developments

Recent openings of two city gas heated housing developments located in the central Hudson Valley, New York, near Fishkill and Wappingers Ceiling Plate and Joist Falls, attracted thousands of visitors to the area to survey the latest in comfortable country living. Hundreds of these visitors expressed particular interest in the city gas installations used for home heating.

1951 Advertising costs

To get the public to buy during 1951 took \$6,548,200,000 in advertising costs, according to a preliminary estimate compiled by Printers' Ink. This represents a 15 per cent in-



ADDED CAPACITY ADDED PROFITS



40% MORE CAPACITY

Increasing the diameter of the pipes in a small pipe system from 4 inches to 4½ inches as has been done by Char-Gale using the Char-Gale register-and-box unit, adds more than 40% to the BTU capacity.

CHAR-GALE'S New 4½" DUCT SYSTEM

Char-Gale's new 4½-inch duct system provides additional capacity, while retaining all the advantages of the 4-inch system. This means more adequate handling of the furnace output and gives you more BTU's per run. You can assure your customers of comfort and satisfaction with this addition to the Char-Gale line.

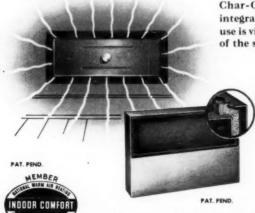
Your added profit with the 4½-inch duct system results from various factors. You can figure bids easily and accurately. You save time and labor, because Char-Gale gives you a complete system, well engineered and easy to install. And you get extra sales because your satisfied customers tell their friends and neighbors about the system.

Char-Gale's NEW register unit

Char-Gale's new register-and-box unit is an integral part of this new $4\frac{1}{2}$ -inch system, and its use is vitally necessary for the proper performance of the system.

The new Char-Gale register distributes heat evenly in all directions, with no drafts or blasts of hot air. It is adjustable, permitting complete balancing at the registers, and has a positive shutoff without noise.

Designed for either dry or wet wall construction, the new Char-Gale register box eliminates the need for a plaster frame. The foam rubber gasket provides a positive seal, with no leakage of air between the register and the register box.



Literature on this system is now available.

CHAR-GALE MANUFACTURING COMPANY



crease over 1950. The largest gain among media was made by television which increased its revenue 161.8 per cent over 1950! Further increase in advertising is expected in 1952.

GAMA exhibit hits record registration for 1952

The Gas Appliance Manufacturers Association has reported that the 1952 bienmal exposition, scheduled to be held in Atlantic City, Oct. 27-31, will exceed all display records in the show's history Prior to April 1, some 72,000 sq ft of floor space was sold for exhibition purposes. The same record sale of space was reached in 1951 for the first time, but not until August.

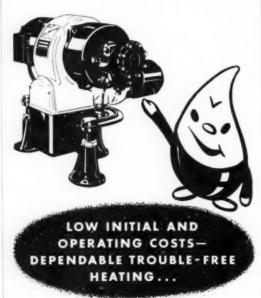
To meet the demand, Harold Massey, exhibition manager, has made available an additional 2,000 sq ft of floor space.

The biennial show is the largest exhibition of gas appliances and equipment ever held in this country. It is staged by GAMA in alternate years, and coincides with the American Gas Association convention. The exposition affords manufacturers an opportunity to acquaint dealers and key personnel in the gas industry with new developments in appliances and equipment.

Natural gas order modified

Consumers Power Co., Jackson, Mich., has been granted permission to furnish natural gas to 15,000 new house-heating customers. Michigan Gas Utilities Co., Coldwater, Mich. and Niagara-Mohawk Power Corp., Syracuse, N. Y., were allowed to extend service to one large firm each in their respective areas.

Sundstvand OIL BURNER







Attractive and Durable

Sundstrand's modern, functional design is coupled with sturdy construction for long wear under any heating conditions, and for quiet, trouble-free operation, you can't beat a Sundstrand.

Think of Sundstrand, for new installation or conversion... A complete line with consumer acceptance, and a burner for every heating job.

For full information, write:

SUNDSTRAND ENGINEERING CO. ROCKFORD, ILLINOIS, U.S.A.



AMERICAN ARTISAN extends

congratulations and best wishes to the following new firms, recently licensed by the state of California as contractors in the warm air heating industry:

Class C-20 Warm Air Heating Ventilating and Air Conditioning Contractors

Ferguson Heating & Ventilating, 8629-C San Vicente, South Gate. Ray Jenkins, 532 E. Birmingham Road, Burbank. M. Schlom & Sons, 5036 W. Jefterson Blyd. Los Angeles

ferson Blvd., Los Angeles. Carl Henricksen, 615 E. Longden Ave., Arcadia.

Class C-43 Sheet Metal Contractors

Wasco Sheet Metal Works, 425 "G" St., Wasco. Warren G. Levi, 400 Sonora, Bakersfield. Paller & Goldstein, 2869 W. Pico

Blvd., Los Angeles. Irvin Schlom, 5036 W. Jefferson Blvd., Los Angeles.

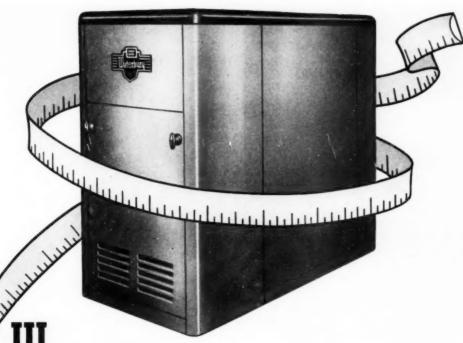
Texas-Ohio Gas Co. Seeks Import Authorization

Texas-Ohio Gas Co., Houston, Tex., has filed applications with the Federal Power Commission requesting authority to import natural gas from Mexico and for a Presidential Permit for the construction, maintenance and operation of the facilities which would be used for the proposed importation.

The company has stated that it plans to purchase 200 million cu ft of natural gas per day from Petroleos Mexicanos, a Mexican corporation which owns and controls large gas fields in that country. The Mexican firm would deliver the gas at the U.S. Mexican border, at the southern terminus of Texas-Ohio's proposed gas line.

The Modern Family's New Home

A 10-room house of contemporary design, complete with "germ-free air conditioning"



FURNACES WINTER AIR CONDITIONERS GAS CONVERSION BURNERS

"A product is best judged by its quality. Manufacturer, distributor, dealer and consumer all know that quality above all else sells and satisfies."

1 . . . for good measure

Performance of product, as well as a sound dealer policy, are two reasons why more and more dealers are choosing Waterbury. That added measure of dependability plus the added measure of interest Waterbury has in its dealers, makes the Waterbury choice a good one.

Every Waterbury unit must meet the highest warm air heating standards, which means maximum efficiency, economy, and dependability from every Waterbury . . . satisfaction for customer and dealer alike.

The Waterman-Waterbury policy is clearly stated. It includes exclusive distribution rights, a close, personal relationship between dealers, distributors, and factory, and a complete line of quality equipment. Yes, dealers find that association with Waterbury is good business.

"It's what's under the casing that counts!"

1122 Jackson Street N. E.

Minneapolis 13, Minnesota



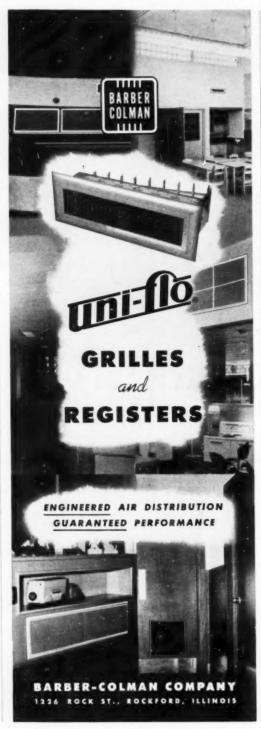
has recently been finished in Stamford, Conn. It is of splitlevel design, has a 3-ton refrigeration unit for summer cooling and an oil-fired warm air system for winter heating. Both are controlled by a special three-zone system. Different temperature levels are maintained in various sections of the house, depending upon their use. Clock thermostats automatically turn the heat down in the evening and up again in the morning, while an outdoor thermostat compensates for sudden changes in temperature.

A semi-radiant heating system was developed by builder Gary Wellington especially for the playroom. The warm air ducts run under the concrete linoleum floor, emitting just enough heat to warm the floor.

A sterile bulb in the warm air supply sterilizes the air. It is dehumidified by a spraytype humidifier.

Comfort Adjustment Cures Heating Plant Ills

The coming of Spring may affect some home owners' enjoyment of indoor comfort by seeming to throw the furnace into a state of confusion. The house either seems too hot or too cold. This is apt to be due to the fact that the air in the house will settle in layers of warm air and cool air when the furnace is not operating. The floors are usually cold This is because in the spring, outdoor temperatures tend to change so rapidly. When the sun comes out, the outside temperatures rise quickly; when the sun goes under clouds, the temperature will fall just as quickly. The furnace, reacting to the quick temperatures changes, goes on





and off and the house appears to be either too hot or too cool for comfort.

This is not an unusual situation, but it is no longer necessary for the home owner to have to endure this comfort hazard if the house is heated with a warm air winter air conditioning system.

The secret of comfortable heating is to add just enough warmth to the home to replace that which is lost. The average heating plant reaches that goal, very nearly, during cold weather when the heating demands of the house cause it to operate most of the time. The answer to this kind of trouble is to adjust the system to Continuous Air Circulation.

Unvented Gas Heaters Illegal in California

Since September 1951 it has been illegal to install unvented gas heaters in any housing unit of any type in California, excluding single family residences in unincorporated county areas.

This fact, not generally known to the heating trade, became effective by an amendment to the State Housing Act as of Sept. 18, 1951. This act regulates hotels, apartments, motels, auto courts, multiple housing units, single family residences, or any other type of structure used for housing located in incorporated communities. In unincorporated county areas, the law applies only to apartment houses and hotels.

A tremendous opportunity for new business was opened up to alert heating dealers by the passage of this law, since it gives them a chance to increase sales while upgrading the overall prestige of their industry.



gdeal for out-of-wall installations IN BOTH PERIMETER HEATING and CONVENTIONAL AIR CONDITIONING SYSTEMS

> The completed installation of No. 4 frame with No. 40 Design Side Diffuser. Note how the stackhead over the frame. Base projection is 3%".



NEW CATALOG No. 52 was just recently mailed. Write for a copy if you do not receive one soon.

The advent of the H&C No. 4 BASEBOARD FRAME is just one more indication that you can always look with confidence to H&C for the finest and best in registers and kindred equipment for every type of installation. In perimeter heating, where solid masonry walls are encountered, or in old or new construction where installer does not desire to use stackhead in wall, the No. 4 Frame in combination with our No. 40 Design Sidewall Diffuser, the only one of its kind on the market, provides an ideal two-piece out-of-wall installation with volume control. Solid and sealed against streaking by the sponge rubber gasket on the diffuser face. Used with our No. 74 Design register, it is equally effective for out-of-wall baseboard installations in conventional air conditioning systems where stacks cannot be placed between the studs. See the No. 4 Frame at your H&C Jobber or consult our current catalog, No. 52 for complete details.



WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES



Charle Cort and provident of Wear M. Cort In such talling to House all subman states. Dan House . A

"Honeywell Zone Control Solves the Problem of Heating Spread-Out Homes!"

says Omaha heating contractor Chuck Scott

"As any heating man will tell you, rambler homes create a problem -a problem in beating control.

"They have about double the exposed area of conventional dwellings. Which means that either the heating plant must work twice as bard, which is wasteful and costly; or some of the rooms never really are adequately heated.

"I found Honeywell Zone Control solves the problem of heat distribution so simply that I wouldn't ever again consider using any other system.

"With it you have even temperatures throughout the house, despite the varying effects of wind, sun, and exposure; or, if you desire, you can maintain different temperatures in different parts of the house, according to use and occupancy.

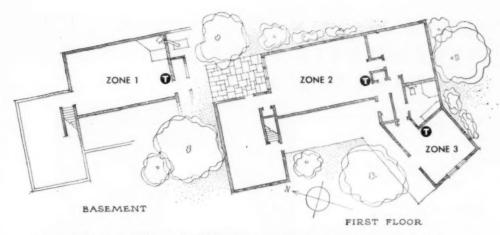
"I've done a thriving business in Zone Control in Omaha the last few years. The Huntzinger job, shown here, is but one example. And with Honeywell Zone Control working for me, the more rambler-type homes they build, the better I like it!"

View of the room rombler ype hone of Mr. and Mr. J. M. Hantzinger, Umaha, Nebraska





Another Plus Profit
Product from Honeywell



"My customers—like the Huntzingers—are completely sold on it"

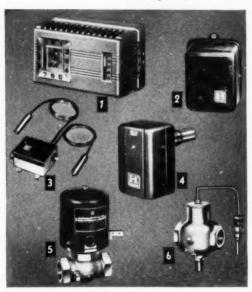
"I'd call the job I did on the Huntzinger residence, shown here, a typical Zone Control installation for two very good reasons. 1) It couldn't have been accomplished with a conventional heating system; 2) The Huntzingers, like all Zone Control customers, were tickled pink with the results!

"As the floor plan shows, I worked out a three-

zone job for this residence. I used three thermostats and relays which operated three circulators. I modulated the temperature of the water in the boiler with a Honeywell T418 outdoor reset control.

"It was really a typically successful and profitable Zone Control job, and added another name to my list of satisfied customers."

Honeywell has controls for any type Zone Control job!



For complete information and application data on famous Honeywell Zone Control, call the Honeywell office nearest you. There are 91 of them located across the country. Or write Honeywell, Dept. AA-6-144, Minneapolis 8, Minn.

Whether it's a hot water or warm air heating system-Honeywell has the right controls for the job!

Here, shown at the left, is the "package" Chuck Scott used for the Huntzinger installation:

- 1. Chronotherm—three famous, fully automatic Honeywell Electric Clock Thermasiass were used—complete with night shut-down, automatic morning pick-up, 24-hour control.
- 2. Relays-three of them used, complete with built-in transformers-for performing the switching operations in the system.
- 3. Outdoor Reset Control—one used, for measuring outdoor temperature, and raising or lowering temperature in boiler accordingly.
- 4. Immersion Aquastat-one, for providing high-limit safety control of the hot water heating system.
- Motorized Gas Valve—one used, for providing slow, positive opening characteristics of the main gas supply for large burners.
- 6. Pilotstat one, a safety device which prevents the main gas valve from opening unless there is a pilot flame.

Honeywell

First in Controls

DEPENDABLE PERFORMANCE EASY INSTALLATIONS

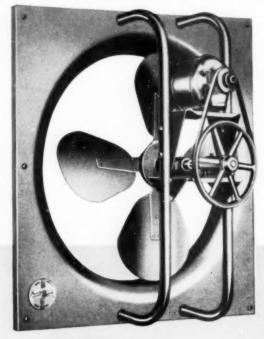
Peerless-built heavy duty motor selected for quiet, efficient and continuous service. Protected by automatic thermal overload circuit breaker.

Variable pitch motor pulley prevents slippage, provides quick, easy method for adjustments.

Wool-packed rubber-mounted sleeve bearings prevent leakage, reduce maintenance requirements.

> Completely designed for easy installation needs only four lag screws for permanent vibrationfree performance.

> > Perfectly balanced heavy gauge steel blades at slow, quiet speeds to assure rated capacity at low noise level.



TYPE PAT VENTILATTIC FAN

Day or night, Ventilattic PAT runs smoothly, efficiently and quietly to provide maximum air circulation at a minimum cost of less than three cents per day. Panel, arms and bearing support assembly are completely welded together—you can depend that Peerless units will not develop into rattletraps. To prevent any inefficient back pressures, the deep venturi in the panel corrals all air pockets and drives them along with other exhaust air.



POLAR STANDS OF THE STANDS

TYPE HAT VENTILATTIC FAN

Correct answer to modern design problems where installations require an exhaust fan in the low attic spaces prevalent in ranch type homes. Installation is quick, easy and economical. Day-time heat can be exhausted rapidly to reduce temperatures 15° to 25°. Type HAT is equipped with an automatic ceiling shutter to provide required inlet air velocities. Shutter attachment includes fusible link for fire underwriters' requirements. Aluminum-trim strips give face of shutter an enhancing appearance that complements any ceiling. Mounting can be either horizontal or vertical.

Smoothest Performers on the Market!

Smooths way to Summer



WITH

FANS AND BLOWERS

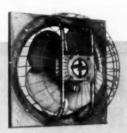
Profits are bigger when you can save time in installation and when the performance is so dependable that, once installed, you don't have to worry about expensive call backs. Each unit represents the highest degree of quality

materials and precision workmanship that 59 years of experience can provide.

Peerless Fan and Blower units are compactly designed, completely assembled and ready to install. Each unit is equipped with a job-matched Peerless motor . . . fan or blower and motor operate as an integral balanced unit for maximum economy. Exclusive with all Peerless Electric units is the MOLLY-FLOW drive—a method which double checks against fan and blower vibration. Standing behind each air-moving unit you install is an unconditional quarantee against faulty workmanship.

With Peerless you get prompt delivery and quick service. Write today for a complete list of prices and specifications or contact your local distributor for assistance with any planning or installation problems you may have.







PVS Exhaust Fan is furnished complete with 1, 2 or 3-speed controller starting switch, and can be mounted sifter vertequired to provide a permanent, quiet and trouble-free mounting. Opening may be round or square to allow greater adaptability in installation.

With er without inlet quards, the PVS-1 and PVS-2 long-hour duty fans are suitably used for exhaust ventilation in kitchens, koundries, backeries, tarent, retail stores, factories and many other places. Three-speed controls vary volume of air flow from one-half to full capacity.

A COMPLETE LINE . . .

Peerless-built certified fan and blower units meet every requirement of economy, efficiency and safety. Write today for your free catalog showing the complete line of fans, blowers, louvers, shutters, penthouses, blower-filter package units and all accessories. For dependable performance and fast, friendly service . . . you can always count on Peerless.







PENTHOUSES



BLOWERS

THE PEERLESS ELECTRIC COMPANY

FAN AND BLOWER DIVISION



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WHY DO IT THE HARD WAY? by BUSTER



There's a CRESCENT SNIP for EVERY JOB

Yes Sir! If you want to cut curves, circles or other intricate patterns, don't use a Crescent Standard Pattern Snip... even though no finer snip was ever made. The Crescent S412 Snip, that Buster is using, was designed to cut straight lines straight—cleanly and effortlessly! He should be using a Crescent T412 Circular Cutting Snip. And there's a Crescent "Heavy

Duty" and a Crescent "Combination" Pattern as well. Hardware Dealers and Industrial Distributors everywhere have all four patterns. CRESCENT CIRCULAR CUTTING SNIP No. T412



Sign of the Artisan Symbol of Excellence

Creacent is dur trade-mark. registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by

News Round-Up

Public Relations for the Engineer

In the field of public relations, the American engineer is a paradox; he is in the same rank as professional baseball players and airplane pilots among public heroes. Despite this, engineers claim that they find their public relations difficult. Engineers with large corporations have trouble making corporation executives and boards of directors understand the nature and importance of what they are doing, especially when it comes to convincing them of the need for further appropriations for research and new techniques and products.

There is also difficulty in convincing the general public of the necessity of post-war construction, such as, for example, natural gas distribution systems. More than once, the course of trunk line distribution systems has had to be delayed or even altered, at considerable additional cost, due to local sentiment.

A public relations executive recently spent an evening with a chemist, during which time the latter spent four hours telling his guest of his lack of understanding of public relations from his viewpoint as a chemist. In chemistry, everything is capable of exact measurement and exact prediction; a chemical statement can be proved to be true, whereas in the field of public relations, the chemist could find nothing which was either measurable or predictable.

Along these same lines, one is reminded of the experiments held at Yale in the mechanism of credibility — the fact that people will believe a statement when it is phrased in one set of words, and will refuse to believe the same statement when it is phrased differently.

Public relations is an art, not a science. There is nothing magic about it: it is simply a matter of experience, common sense, and intuition. There is no witcheraft in it, since it is basically a skilful presentation of sincerity and friendliness. The engineering profession will be assuming increased responsibility for the conduct of industry in the future. It behooves engineers as individuals and engineering as a profession to give increasing attention to the science of public relations.

Oil Pipeline Construction to Hit Peak in 1952

THE YEAR 1952 will witness the "greatest oil-pipeline construction activity in history", according to John E. Boice, special assistant to the director of the Supply and Transportation Division of the Petroleum Adminis-

tration for Defense. In a recent address delivered before the American Petroleum Institute Conference on Products Pipeline Technology at Fort Worth, Texas, Boice stated that present industry plans call for the laying of about 6.500 miles of crude-oil lines and 3,500 miles of product lines during 1952. The Supply and Transportation Division of PAD has already approved all of these projects.

Television Advertising

THE DAY OF the order taker is over; it's time to get out and sell. That was the gist of the message expressed by different speakers in reference to various domestic gas appliances, keynoting the recent Eastern Natural Gas Sales Conference held in Pittsburgh in April. The program was presented under the leadership of Lee Corn, supervisor of domestic sales, The East Ohio Gas Co., Cleveland, and chairman of the conference, who told the delegates to gear their sales efforts to the current guns-and-butter economy.

A regular national advertising program of manufacturers, utilities, dealers, and associations, based upon anticipated sales and revenues for the year ahead was recommended by one speaker, James F. Donnelly, assistant general manager, A. O. Smith Corporation. "If we set aside a fixed percentage of anticipated revenues for advertising, we will get the heating business", he stated.

Television as the ideal selling medium was presented by Hendrik Booraem. Jr., of McCann-Erickson, Inc., New York, in an address entitled "Sellovision". The future of television seems assured, according to Booraem. "There are 109 stations operating in the United States today There are 64 television markets, and some 16 million television sets. In television areas, better than one out of every two families, or about 60 per cent, own sets. The television markets represent about 67 per cent of the total purchasing power of the United States.

The cost of reaching these television families has decreased steadily, the speaker reported. A good half hour evening program delivers advertising to television audiences at a cost per thousand of under three dollars.

Expressing belief that television will become a local medium, Booraem said: "I do not believe that the networks will be able to stand up against the competition of fine programs on film sold locally to individual stations or to advertisers for individual markets." Members of



News Round-Up

A.G.A., he explained, can unite to buy a film program of a higher caliber than any one of the individual companies could buy for the same amount. Each company would pay its pro-rated share and use the program in its local community just as it would a local show.

Following this pattern, the gas industry can use television effectively as a national medium, Booraem declared. Each individual gas company can spossor top grade talent on film which it owns outright and can use as it desires.

WAHI Advisory Committee Sees Shortages

A POSSIBLE SHORTAGE of heating units to support the high level of construction expected in 1952 was predicted by the Warm Air Heating Industry Advisory Committee in a recent meeting with the National Production Authority.

Although industry levels are high at present, the condition is normal for this time of year, according to industry spokesmen. If the anticipated 950,000 to 1,000,000 new homes are started this year, a shortage of furnaces may develop, since manufacturers' steel allotments and similar controlled materials are too small to permit making the required number of units.

Recommendations made by the committee included the allotment of more aluminum and some nickel-bearing stainless steel to the Warm Air Heating Industry. In view of the extreme short supply of the latter, some committee members had substituted chrome stainless in its place whenever possible, but for certain flame-bearing uses, no substitution was feasible. NPA is working toward further allotment of scarce nickel.

Further recommendations include a change of the base period to the second six months of the year, since a higher production level is maintained in the latter half of the year, reflecting seasonal production changes. An extension of the present 45-day inventory limitation to 90 days was also suggested.

NPA reported that while galvanized sheet allotments had been low due to zinc scarcity, the situation was improving rapidly and should no longer be a problem by the third quarter of 1952. Copper remains in short supply, but measures are being taken to step up production, both in the U.S. and Chile.

Residential Building Still on Increase

THE VALUE OF erected residential building increased in each of the first three months of 1952, attaining the seasonally adjusted annual rate of \$10.9 billion for the quarter. This represents a rise of 8 per cent from the fourth quarter of 1951.

The number of new private non-farm residences be-

gun increased contra-seasonally in the early months of 1952. The total of around 255,000 starts in the first quarter is 10 per cent below the corresponding period of 1951. If this ratio to last year's building continues, total private starts in 1952 will approach one million.

The normal annual increase in households, due primarily to the net increase in marriages, is estimated at about 700,000. Adding to this the new residences required to maintain a normal vacancy ratio associated with the additional units, the basic average annual demand for new dwelling units is around three-quarters of a million.

Between April 1917 and April 1951, new dwelling units were added at an average annual rate of close to 1.5 million, of which just over one million have been new permanent non-farm residences. The excess of actual demand over the computed basic rate during this period has been due primarily to an annual net marriage rate of 300,000 above normal, the division of families and individuals living in other households at an average rate of another 300,000, as well as an increase of vacant units of around 100,000 a year.

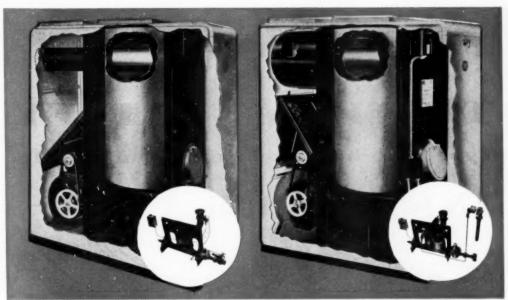
A backlog of demand for new housing still remains, and while it is less than half that of 1949, it should sustain a high rate of home building into 1953.

Research Report on Air Flow Through Windows

THE TEXAS Engineering Experiment Station has published a research report, "Air Flow Through Conventional Window Openings". This report includes all conventional window types, illustrating several air flow patterns under varying conditions. According to the foreword, architects are turning increasingly toward making optimum use of natural phenomena in building design. A study of the air flow through standard manufactured windows yields useful data which is at times overlooked, as in the example of a new Texas school which was designed to stress cross ventilation and equipped with windows widely used in school building design, yet the window arrangements produce an air flow which has no cooling value for seated students.

A further example was that of a house which had been carefully oriented and equipped with a combination of fixed glass, louvres, and operating windows which failed to admit sufficient ventilation in the living quarters.

The report is a result of the research carried on since 1950 by the Texas institution. Its purpose is to assist architects and home purchasers by presenting information on the natural flow of air through a variety of conventional windows under controlled conditions. Copies of the report are available upon request to the Texas Engineering Experiment Station, the Texas A. and M. College System, College Station, Texas.



Richmond AS12-G — Ideal for small homes. A.G.A. input of 90,000 BTU/Hr.

ONE BASIC GAS BURNER
Different control combinations
adapt this gas burner for either
size of furnace, any type of gas,
sea level or high altitude.

Richmond AS23-G — Built for medium-size homes. A.G.A. input of 115,000 BTU/Hr.

Available Now- Two Steel Gas-fired Winter Air Conditioners by RICHMOND

These two Richmond gas-fired...steel...winter air conditioners are identical in their fine engineering features. Two sizes... AS12-G-90,000 BTU/Hr. input... AS23-G-115,000 BTU/Hr. input... cover most heating requirements. Study these quality features:

A. G. A. APPROVAL — both units are fully approved by the American Gas Associaion.

HEAT EXCHANGER made of heavy 12-gauge steel for maximum durability. All seams welded full length. Transmits heat quickly and efficiently to circulating air.

BURNER AND CONTROLS are easily removed for service. Mounting plate is held securely in place with four nuts permitting quick removal.

WHITE JACKET of rugged steel construction, streamlined and rounded at the corners. Finished in lustrous white enamel, baked on for long life.



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Places send me full information on the Richm gas-fired winter air conditioners, AS12-G and	ond steel,					
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TUTTLE and BAILEY

Type HPD high pressure diffuser units

INSTALLED IN

A DRAMATIC tower of glass, steel, and light, Lever House is acknowledged as an outstanding contribution to the development of modern office living. Planned throughout to provide ideal conditions for the work and relaxation of the 1200 employees of world-famous Lever Brothers Company and its four divisions, the 21-story structure is a tribute to those responsible for its conception and construction.

Contributing to the comfort, cleanliness, and efficiency of Lever House is the unique high pressure air conditioning system that delivers fresh, filtered, right-temperatured air in interior as well as perimeter zones.



This high pressure system resulted in elimination of a costly penthouse on the roof, elimination of return air ductwork on each floor, and a 50% reduction in the space normally required between furred ceiling and floor above.











Tuttle & Bailey Type HPD High Pressure Supply Air Units selected for installation throughout Lever House were specially designed to handle the branch duct velocity of 3500 FPM. Supply air entering the housing from the branch duct passes through an airfoil type high pressure damper into an expansion silencer chamber where pressure is reduced from a branch duct pressure of 4" to 0.4" water gauge. A circular jet induces room air into the unit where it mixes with the primary air stream, and then discharges through the diffuser face.

Other Tuttle & Bailey equipment installed includes Type D square return air units designed to match supply diffusers . . . Type AL Aeroline return inlets . . . and, in the lobby, a special combination supply and return linear unit.



From preliminary stage to job completion, Tuttle & Bailey engineers worked closely with the engineering and architectural staffs. To be closely associated with so important a development as the high pressure air conditioning installation in Lever

House is a unique experience for any manufacturer of air distribution equipment. Only through such experience in the field coupled with a continuing p.ogram of laboratory research — is leadership maintained.



NEW BRITAIN, CONNECTICUT



Carey duct

ALL-ASBESTOS AIR DUCT



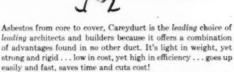
air movement

speeds up

installation

Carey duct

CONSERVES CRITICAL METAL. TIME AND LABOR COSTS ... POSSESSES REVOLUTIONARY **NEW ADVANTAGES!**

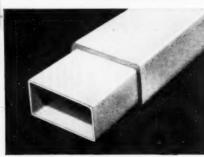


Careyduct is approved by Underwriters' Laboratories; cannot rot, rust or burn; is job-proved on important installations from coast to coast. Order it in standardized prefabricated sections for slip-joint assembly in two all-purpose forms!



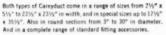
Single Wall Careyduct FOR WARM AIR HEATING SYSTEMS

"SW" Careyduct hushes pops, groans and creaks that "telegraph" through ordinary metal ducts during furnace "on" and "off" periods. Its insulating properties conserve fuel, speed furnace-to-room heat up time. "SW" Careyduct is also ideal for cold air returns and ventilating conduits. The 3' prefabricated sections are joined by a collar, similar in texture and thickness to the duct itself



Insulated and Acoustical Careyduct FOR AIR CONDITIONING SYSTEMS

"I&A" Careyduct "soaks up" sound . . . hushes air noise . . . absorbs fan rumbles and grumbles . . . makes possible whisperquiet air conditioning systems in new buildings or old. "I&A" Careyduct handles air velocities up to 2500 feet per minute; permits installation of smaller ducts where space is limited. The 3' sections are designed for rapid, trouble-free installation with ordinary tools.



Get the full story! Learn how you can save metal, time and manpower . . . improve your profit picture, too! Phone your Carey representative, or send for your free copy of our new Carevduct Manual. No obligation!



The Philip Carey Mfg. Co., Lockland, Cincinnati 15, Ohio



Arnold Kruckmans Washington <u>Let</u>ter

On One Side of the Political Page

This is to be an analysis of the problems that will confront a Republican if he is elected President. The first step is to define in one's own mind what is one's concept of a Republican under existing circumstances. The best way probable is to describe one's sense of the two men who are before the country as possible candidates. As we assay the feeling of the country, particularly that part of the

country which the commentators love to call the grassroots, the country is quite ready to accept something and somehody that might be labelled Republican, but would be a far cry from the traditional thing we think of as Republican. As we get the feeling of the country here, it is entirely out of sympathy with the usual stereotyped kind of political modeling. At this moment men with principles that reflect the classic Americanism of the beginning of the nation more nearly fill what

the people want than any of the conventional candidates that are offered today. It appears to be another period of crisis when the watchwords and slogans will go down. There is a ferment in the depths of the country's humanity that means a driving need for a crystallization in intelligible terms of what the people feel and what the people want. Some of this may come out of the boiling in the impending election; but it is doubtful whether it will become entirely clear until we go through the travail of at least another four years. There are so many fundamental, compelling ideas, ideals and influences that will have a bearing on the final resolution that time alone must play its part.

What are the problems that confront the Republican President? He will have to do something about that

The AMERICAN ARTISAN feels that the coming election is of major importance to all Americans and is presenting the political and economic problems being faced by our government at this time and how they will be handled by each of the major political parties if they are voted into power. Also, the most likely candidates of each party are discussed.

This month the Republican party and its leading candidates for nomination are presented for your consideration and approval.

In the July issue the Democratic party and its leading candidates will be discussed and in the August issue of AMERICAN ARTISAN the men nominated at the national convention in Chicago and both party platforms will be analyzed.

huge civilian and military personnel scattered all over Europe, Africa. Asia, Oceania, virtually wherever there are commercial potentials, industrial fundamentals, and political or military, air and naval defense possibilities. He will be confronted with the problems of the Mutual Security Agency, the Point Four organization of the State Department, and the many other direct and indirect organizations established by

the State Department, and by the Department of Defense in England, France, Belgium, Holland, Germany, Italy, Spain; and in North Africa, Central Africa, Formosa, Japan, Indochina, Burma, Thailand and other parts and pieces of Asia. He will have problems to solve on the Pacific, on the Polar Sea, the Antarctic Ocean, on the Atlantic, the South Seas and the Indian Ocean. No one

knows, except a few people in Government, how many persons there are on the Federal payroll. Taking everything, including the Armed Services, this payroll probably exceeds twelve million people. If the Republican President really is obedient to the wishes of the people he must try to reduce this octopus-like growth; he must reduce taxes; and he must reduce the disbursements which include the tidal waves of our resources that are going out into all parts of the world. If he truly fills

the bill he should get Government out of business, so far as possible; put us back on a less precarious financial basis, and probably put us back on the gold standard. There is a demand that the next President should do something about reducing our participation in the expansion of school construction. It is the public sentiment that we should get out of an attempt at domination of the schools. The people want the next





Washington Letter

President to take more definite steps to see that there is real freedom of the Press; that something is done to control indiscriminate refugee imigration. The people want the President to put a very stiff control on the Pentagon; and to take the Commerce Department away from Sawyer and make it more American; they want a reorganization of the Department of Agriculture, which seems so honeycombed with corruption. They want the Labor Department cut down to size, and the Federal Security Agency shrunken. Of course they want the Department of Justice overhauled; and the Treasury Department, with its Internal Revenue, cleaned up.

The Washington Bureaucracy

If you would have even the faintest idea of what confronts the next President, look upon this picture of the Government organization. He will find that immediately around him, responsible directly to him, are forty-six independent agencies, including the Budget and too many others to mention; he will discover that the State Department consists of fifty-four major parts, spending vast sums of money on activities like the Voice of America, the United Nations; and that it has its own Intelligence Services; and agencies within agencies which cloak activities here and abroad that probably even the President doesn't know very much about what's going on. He will probably be amazed at what he will find in the hugely swollen Department of Defense, with its three major subdivisions. And he will be confronted by the Post Office Department with its huge personnel, poor organization and administration and wastefulness, which gives the people a service that exasperates them almost beyond reason, despite the huge appropriations it receives. And then there is the Department of Interior considered the hot bed of radicalism, with its Bureau of Reclamation, headed by Michael Strauss who has been called the toughest bureaucrat in our history. It is the Department of Interior, with its various powered administrations. that seeks to establish the various Authorities to function like the TVA over twelve or fourteen different subdivisions of the United States, like Federalized substitutes for the States themselves. The Department of Agriculture, with its direct offices in 3000 counties of the United States, is another of the Agencies that spends vast sums of money, and which is now very much under fire. Commerce Department also has developed into a huge system including such puzzling diversities as the Bureau of the Census, the Civil Aeronautics Authority, the Bureau of Public Roads, the Federal Maritime Administration, the Inland Waterways Corporation, the Bureau of Standards, the National Production Authority, the Patent Office and the Weather Bureau. In addition to these old-line Departments there are 146 independent offices, some of which are as large as any of the Departments. And in the Judiciary set-up, with the United States Supreme Court at the top, there are thirty-seven separate parts, each of them with sizable organizations. Then there is the really massive local District of Columbia Government, which comes directly under the President. and which has 125 separate parts scattered all over the City, and each part, like all other Government agencies, broken down into sizeable separate units. This rather cursory picture of the Federal Government. with its regional and State offices in all parts of the United States, overstaffed wherever the offices may be. should give you some vague impression of the monster-like-thing the next President has to confront, if he really wants to do a job. Incidentally, it may interest you to know that he has accredited to him seventy-five foreign Embassies, each with a sizeable staff; and that there are approximately 1000 newspaper correspondents; periodical correspondents, radio, television and photographic personnel, accredited to the White House. and with whom at one time or another, the President must deal. There are approximately something under 600 persons on the "Hill" in the Senate and in the House, each of whom have their own staffs, and under whom are Government Agencies like the Library of Congress, the Architect of the Capitol, the Arboretum, and ninety-two other sizeable offices and agencies. What do you think of your Government?

Social Security and the next president

It will be up to the next President to do something about the Social Security mess, to determine what to do about the social security funds which the Treasury has used to pay the general expenses of the Government. He will undoubtedly be called upon to secure modification or repeal of many laws which tend to make this a collective autocracy. He will be called upon to do something about the liberty with which unions can order strikes; and, to balance, to restrain business in its relations with the unions. There is no remote doubt that the next President will be expected to check sharply the right to strike. He will be required to use the Taft-Hartley Act which more nearly approximates what the overwhelming number of people desire.



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■ The "Kno-Draft Method" is the first successful adaptation to home use of the air diffusion principle proved by years of use in industry. It puts the warm air heating inlets in the ceiling where they belong. Greater heating efficiency and comfort for the home owner... greater profit for you.

To install Kno-Draft Air Diffusers you merely run your furnace bonnet up to the attic, then take off for the diffuser outlets in the ceilings. Your runouts and elbows can be standard round duct

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save time and bring down your costs.

You can figure a Kno-Draft job easily, too. Just use the "inches of heat" method to size your Kno-Draft Air Diffusers. You'll be right every time.

Mail the coupon today for full information about this fast-growing method of warm air heating, and the money in it for you.

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NEW Century Lo-boys with CONTROLLABLE HUMIDIFIER, AIR WASHER & PURIFIER

Enthusiastic buyers increase Century dealers' profits!

Like all heating men, you realize the true facts about humidified heat. You know humidifiers are unsatisfactory

unless they can be accurately regulated to compensate for weather changes plus differences in climate and home construction. You also know how easy and profitable it would be to sell a heating line offering built-in humidity that can be controlled to the exact degree desired.

Only Century offers this important selling advantage. It's a sales-closing exclusive for Century dealers. Century dealers proudly tell their customers, "YOU — not the manufacturer — determine the exact degree of humidity for your home. A simple humidistat, placed by your thermostat, permits accurate humidity control and makes your home a more comfortable place to live. You enjoy this heating 'extra' only when you install Century."

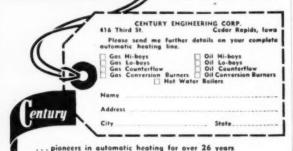
When you sell the progressive Century automatic heating line you profit from a line that's years ahead of current

standards. It's a complete line too — 38 gas and oil units that sell and satisfy.

Write today for the Century catalog and complete details. You'll be glad you did.

CENTURY ENGINEERING CORP., Ceder Repids, lowe.

Advertised in Better Homes and Gardens and Small Homes Guide



Washington Letter -

If this law is really used, there is not only a cooling off period of eighty days, but the dispute must go back to the President, who must try to solve whatever the problem may be; and if he is unsuccessful, as an absolutely last step, the law requires that he must submit the whole problem to Congress. It was this part of the law that apparently caused Truman to avoid the Taft-Hartley law in the steel controversy. The President will be expected to take definite and immediate steps to wipe out the Wage Stabilization Board. From reactions received here there is no more unpopular Agency of Government in the Federal system. The Executive will be expected to do something about the taxes, because one out of every three dollars of the national income now goes into the Federal Treasury. The people want more of their money and they want to get more for their money.

The President will be expected to see that the States regain control over tidelands, and over the earth beneath the water along the nation's coasts. This is tied up with oil resources and with many property rights which are jeopardized by Truman's insistence that the tidelands be Federalized.

Universal Military Training Bill

The next President also will be expected, especially by the mothers of the nation, to draw the teeth of the proposed Universal Military Training laws, which will cost \$4 billion a year, and heaven only knows, how many young men. He will be expected to eliminate wage and price and rent controls as swiftly as possible; and it is expected that he will be overwhelmingly under pressure to oppose the development of the St. Lawrence Seaway. And naturally he will be expected to do his utmost to make sharp cuts in the military budget. There are also over forty-five reorganization plans, prepared by the Hoover Committee, which this next President is expected to implement, "to prevent waste, overlapping. duplication and corruption". He also will be confronted with many problems connected with Government employees who sincerely believe they have a vested right in their job and in many concommitants of Government employment. Obviously, also, he will be confronted with the huge list of appointments that he must make to fill jobs legitimately, and for clamoring patriots. This President also will have farmer problems. It is officially reported that farmers in various parts of the country are going into debt. Nineteen fifty-one loans have not been repaid on schedule. Over 50% of the loans in the corn belt are not expected to be repaid by reason of poor crops and reduced margins of income on feedlot livestock. Poor crops have made payment of family and operating debts very difficult throughout the mid-west. corn belt and in the southwest drought areas. The next President also will have to do something about the fifteen river basin authorities which have been urged, and which are attractive politically because each authority would have nine members appointed by the President with big





T-30 PACKAGE SET

For automatic heat at home, the General Controls T-30 Package Set is a sure short cut to economical and trouble-free comfort. Included with the graceful T-70 Timer Thermostat, is the long-proved, Type K3 Mag-netic Gas Valve, Transformer and Thermostat Cable. Optional Timer Thermostat is furnished in two models, either for internal night setting (T-70-T) or with both day and night temperature selection at your finger tip (T-70-X) on the face of the sleek and satin-finished cover.

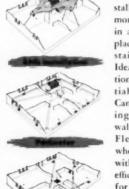
Soft Seat-For All Gases-Way back in 1932, the forebear of the present K3-A was originated, developed and pioneered by General Controls. It became the first in a long series of quiet, dependable, two-wire solenoid magnetic gas valves that today are standard equipment at home and in industry for controlling gas to warm air furnaces, gas-fired boilers, conversion burners and similar applications. Closing with the gas flow, in the K3-A the pressure is on the top of the soft seat assuring indefinitely tight valve shut-off. Closing is automatic in case of power failure, and the K3-A, like all other General Controls solenoids, is absolutely humless when energized. Current consumption is low and the extremely compact valve easily meets high flow capacities and operating pressure requirements. In the K3-A you find just one more sound reason why the leaders everywhere declare that for the best in automatic controls, it's General Controls!

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FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffale 3, Chicage 5, Cleveland 15, Columbus 15, Dallas 2, Denver 4, Detroit 21, El Pase, Glendale 1, Housten 6, Indianapolis 4, Kanao City 2, Milwauhee 3, Minneapolis 2, Neweri 6, New Orleans, New York 17, Omaha Philadelphia 23, Pittsburgh 22, 51, Louis 3, San Francisco 7, Seattle 1, Tulsa 6, Washington 6, D.C. DISTRIBUTORS IN PRINCIPAL CITIES



One furnace for ALL



Adaptable to any type of installation or floor plan. Adds more useable space. Hide it in any small out-of-the-way place in attic, under floor or stairs, closet, utility room. Ideal for basement installations. (It's the answer to partially flooded basements.) Can be suspended from ceiling or floor joists, put on wall shelf, or set on blocks. Flexible-can be located where it cuts piping costs without sacrificing heating efficiency. Especially suitable for ranch-type homes. Four sizes 40,000 to 100,000 BTU.

Write for literature and complete details.



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Washington Letter —

salaries. The project also would have on each authority an Advisory Board of twenty-five members who would have all sorts of perquisites. And the next President would be expected to straighten out the railroad mess which includes return of the properties to their owners, and to adjust the differences with the Unions.

And finally the next President undoubtedly will have the tragic burden of cleaning up the Korean War. It is not expected there is a truce ahead. The Communists are regarded as having the initiative and wish to hold their advantage as it is. The casualty rate, on our side, is 15,000 a year. Casualties are expected to go on. So will the draft. One young man in three is expected to go to Korea. One in thirty is regarded as a likely casualty. As the War is in progress at present, this spells no terminal. It means we will keep over four million men under arms, one out of every seven men is involved in Korea. It costs us about \$12 billion a year. It is not expected the present Administration will do anything about it. Professional politicians think that the people are so inured to it that presently it will not affect their votes. But it is deemed certain the next President must do something about it. It will be his biggest immediate headache.

In the broadest sense, Washington feels much as do the people out in the country: they think it is quite apparent we do not appear to have the military genius to solve Korea: or the civilian leadership to find the way out of the stalemate. The person who will clear up the Korean mess probably will be America's greatest immediate hero. Bear in mind Korea is more important than its immediate connotation. The Communists regard it as definitely the great striking defeat of the West. It is considered the blockade that stops us in all directions.

Leading Republican Candidates

Let's look at each man's record and ability to cope with the afore mentioned problems. Senator Taft unquestionably is almost the traditional portrait of what most of us mean when we speak of a Republican. He ardently belives in free enterprise; he is the champion of the things that are identified with the Right, but he is not an extremist. He favors more Social Security, and more educational facilities, and believes in doing everything possible to supply better housing. He opposes TVA, and all the things that are implied by TVA, but favors rural electrification. He believes in limits to controls, but does believe in some controls, and would not repeal the Capehart Amendment. He favors arming Europe and wants us to withdraw our troops from Europe. He thinks we should arm the Chinese on Formosa, blockade the Chinese coast, and do everything possible along the MacArthur lines to bring the war in Korea to some sort of dignified conclusion. He is for what he calls a reasonable foreign policy, but no more wild spending. Both in the foreign and in the domestic sense he thinks what we spend must match our income. Of course, he would reduce taxes,

(Please turn to page 134)





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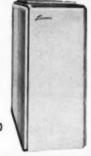
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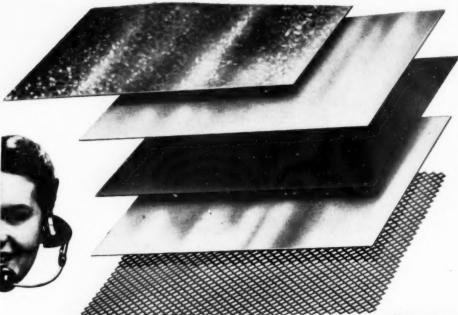




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The Ryerson Machinery & Tools Catalog contains over 200 pages of pictures, specifications, etc. on metal-working equipment, including every type for sheet metal fabrication. More than 75 different manufacturers are represented, but you can order all the equipment illustrated from the Ryerson Machinery Division. Many types are available for quick shipment. If you would like a copy of the catalog write your nearest Ryerson plant for Machinery Book No. 50.

AN IMPORTANT NOTE ON SHEET METAL MACHINERY

Fabricators who apply to NPA for ratings to purchase metal working machinery are finding it is not necessary to have contracts directly connected with the defense program. Those with work essential to civilian economy can get ratings, too.

ARTISAN

When There is Peace Again

THE QUESTION, "What will happen if peace breaks out?" is not a facetious one. Millions of serious-minded Americans have been speculating on that possibility, especially during the recent months of armistic negotiations in Korea. The question may have been asked of you, or it may have arisen in your mind.

The defense program that developed with the outburst of the Korean War brought to America many economic problems for both government and business.

The peace that everyone hopes is not too far off will bring many more. Even if arms are laid down in Korea, there is no certainty that heavy defense spending will cease. However, as production schedules are met and stockpiles are accumulated defense spending may be ex-

pected to shrink somewhat.

There are endless ways by which business can plan its own affairs to stabilize economic activity. It can time and accelerate research. It can bring out new products. It can increase sales effort. It can pay off debts during prosperity, so business will be financially sound and able to weather a decline. It can adapt price policies to changing phases of the economic cycle.

Business, of course, can never be completely stabilized. Growth, change and uncertainty are inevitable in a dynamic economy. Yet, by the intelligent application of policies that are sound, coupled with social security assuring minimum living standards, the American economy

can look into the future unafraid.

The announced intention was to complete the program in 1953. There was to be a big output of military goods and capital goods building, which was to reach a peak in 1953 and fall off rapidly thereafter. In that period, production of consumer goods was expected to suffer. Predictions were for austerity conditions and dangerous inflationary pressures.

But what happened?

Defense has been stretched into 1954, perhaps 1955. We may already have passed the hump. Predicted scarcities have failed to appear, and there is no reason to look for them later on.

International tensions make it almost certain that defense production will continue at a considerable rate, no one knows for how long. Before Korea they totaled less than 15 billion dollars annually. Estimates for the future range from 30 billion to 40 billion, and even as high as 50 billion.

Government expenditures cannot be cut back as much as at the end of World War II. That greatest spending

cut in history did not bring unemployment but rather was accompanied by the greatest boom in history, and the nation was beset by inflation.

Many are worried for fear that when government spending is cut unemployment will result. But with government on a pay-as-we-go basis, we can lower taxes and still maintain a balanced budget. Thus, money is made available for private spending.

Looking at the future, one sees some hopeful facts and

figures.

Early in February the results of a survey on expansion plans for industry were published. Here they are: Capital expenditures for 1951 were 18.8 billion dollars, for 1952 they are estimated at 21.2 billion. For three years thereafter the estimated amounts are highter in dollars and about equal in physical volume to the pre-Korea average, even with no data on companies that do not plan ahead.

In March 1952 it was predicted that business might run into readjustment troubles in 1952 and 1953, but that by 1954 things would be good again.

There is a tremendous backlog of public construction. This may take up most of the potential slack.

No one knows how much backlog there will be. If it turns out to be small, business will have to rediscover the lost art of salesmanship. Also, it will have to be alert in new model production development and in research. Just because some supply pipe lines become clogged is no reason for declining production. Nearly 15 million families do not own an automobile. Only one in 10 have two cars.

If demand for what we know as consumer durable goods falls off, removal of restrictions on real estate and installment credit would help.

And when peering into the future to guess consumer demand, don't forget the babies that are coming along. In the 1940's we added 19 million persons to our population. Estimates for the 1950's are higher still.

Summarizing: To keep our economy expanding so as to provide a richer and fuller life for our people, we must remember that our competitive market economy in which we exchange goods and services must be kept functioning to maintain production and incomes. There is no discernible limit to human wants and needs. Nor, in the words of the economists, need there be any lack of purchasing power if we employ to the fullest our intelligence and our industry.



Officers of the Sheet Metal Contractors National Association who have accepted the responsibility of guiding its activities for the 1952-1953 term.

SMCNA Annual Convention Report

Sheet Metal Contractors National Association meets in Rochester, N.Y. to discuss Apprentice Training Program, Warm Air Heating Code, Public Relations and Labor Management.

WHEN MEMBERS of the Sheet Metal Contractors National Association are faced with problems, they know how to find the answers. Committees composed of members from all parts of the nation get together, talk over the problem, find out how other contractors have faced similar problems, call in authorities on the subject, weigh the facts, and finally at the annual meeting of the association, they lay the facts before the full membership and the answer is found.

For three days, May 12-14, the business sessions hummed with activities under the guidance of President E. B. Brown, Jr.

The 1953 convention will be held at the Jung Hotel, New Orleans, La., May 1-6. The new officers elected by a unanimous vote are:

President, Angelo Hoffman, Milwaukce, Wis. First vice president, A. J. Sabathne, Altoona, Pa. Second vice president, Dee Cramer, Flint, Mich. Third vice president, Paul Stromberg, Washington. Treasurer, C. M. Gundlach, Sandusky, Ohio

Directors, term ending 1955

Clarence Meyer, Buffalo, N. Y. H. Wallace, New Orleans, La. Clyde Parriott, St. Paul, Minn. R. J. Munzlinger, St. Louis, Mo. Director, term ending 1951 (Replacing Dee Gramer) Nat Leas, Fresno, Calif.

Apprentice training

One of the highlights of the meeting was the presentation of a plaque to the Minneapolis committee on joint apprenticeship activities, represented by Leo Nees for the contractors and Ed Hudoba for the apprentices. The presentation was made by Wm. Patterson, Director Federal Bureau of Apprenticeships. In his presentation speech, Mr. Patterson paid tribute to the Sheet Metal Contractors National Association for its attitude toward the apprentice training program. He stated it was second to none and the success of such a program must be shared equally by both the contractors and the union.

In his report to the association, Nels Madson of Racine, Wis., stated that 32 joint committees conducted competitions in the 1952 apprentice contest, and those contractors aiding this program were of the opinion that real apprentice training was the life blood of the industry. He emphasized it by stating, "Apprentice training is the college course of industry."

Winners of the 1952 apprentice contest are: First award; Mattew Greco, Boston, Mass. Second award; George T. Wyman, Jr., New Orleans. Third award; Kenneth Vogel, Milwaukee, Wis.

Public Relations

The Liaison Committee for Mechanical Trades, L. L. Narowetz, chairman, reported success in obtaining equal recognition among the other building construction trades in the Senate sponsored Bill S-2907. This bill in its original form would have failed to recognize the sheet metal contractors as anything more than sub-subcontractors because it placed ventilation and air conditioning in with the heating work when the bid was to be submitted, thereby obliging the sheet metal contractor to become a sub-subcontractor to the heating trade, without any direct recognition from the general contractor.

Senate Bill S-2907 has not yet been voted upon, as a bill of this type must be complemented by a like bill in the House of Representatives; however, if such a bill is ever made into law the sheet metal contractor will be given equal representation.



Retiring president E. B. Brown, Jr., (right), congratulates his successor, Angelo Hoffman.

The Warm Air Ordinance Committee, C. A. Pfahl, chairman, presented a 52-page uptodate Warm Air Heating Code covering both gravity and forced air heating systems. This new completely self-sufficient code is the result of years of research. It includes all data required for installing and maintaining gas and oil fired equipment.

Because the committee felt that a warm air heating code without proper licensing, inspection, and permits could not serve the purpose intended, licensing, inspec-



Attending the Annual Banquet were (I. to r.): Mr. and Mrs. Ramon K. Mielke, Battle Creek, Mich., Mr. and Mrs. M. B. McConnell, Lansing, Mich., and Mr. and Mrs. William C. Schmitt, Rochester, N.Y.

tion, permits, fees, etc., were made an integral part of heir research and they have prepared a Suggested Licensing Ordinance for Warm Air Contractors to be submitted to municipalities along with the recommended code. It is hoped that the interest shown by over 200 communities to aid in the reduction of fire hazards from improper warm air furnace installations will promote even wider acceptance by the public for this form of heating.

The suggested licensing ordinance opens with this paragraph:

"A licensing ordinance to create a Board of Warm Air Heating; to prescribe the powers and duties of such Board; to provide for the licensing of those who wish to engage in the business of warm air heating and to qualify as such under the provisions of this ordinance; to require permits for the installation of warm air heating equipment and appurtenances; to provide a procedure for the revoking of said license; to create the office of Inspector of Warm Air Heating and prescribe the powers and duties of said Inspector of Warm Air Heating; to provide penalties for the violation of this ordinance and to repeal any parts of this ordinance in conflict with local regulations."

The Warm Air Heating Code covers the following subjects:

Definitions

Determining Heat Loss

Design of a Gravity Warm Air System

Design of a Forced Air Warm Air System

Furnace Location and Mounting

Installation Clearances

Setting and Assembling of Furnace

Warm Air Supply Ducts



Committee chairmen reporting on "Problems of Our Industry" in a penel-forum session, A. J. Sabathne presiding,

Cold or Return Air Ducts — Gravity and Forced Air Air Filters

Warm Air Heating Panels — Forced Air Installation of Gas Fired Warm Air Systems Installation of Oil Fired Warm Air Systems Installation of Stoker Fired Warm Air Systems Controls

Authority upon which this code is based is as follows: Manuals published by National Warm Air Heating and Air Conditioning Association.

Pamphlet No. 90 of the National Board of Fire Underwriters

Technical Manual, Stoker Manufacturers Association American Standard Requirements for Installation of Gas Piping and Gas Appliances in Buildings — 1950 American Society Heating and Ventilating Engineers Guide, 1951

National Fire Protection Association — Handbook For Fire Protection, Tenth Edition, 1948

Further public relations work has been accomplished by the preparation of a letter addressed to architects and engineers advising them of an 8-page pamphlet made available by SMCNA to assist them in securing bids and sub-bids on sheet metal work for buildings and structures. The pamphlet outlines by subject both interior and exterior sheet metal work and references for material and publications relating to this field.



William Patterson (right) presenting the plaque to the winners of the Apprentice Training Program Contest, Leo Nees (left) for the contractors and Ed Hudoba for the apprentices.

The Corrugated Iron Agreement

In a talk by Robert Byron, president, Sheet Metal Workers International Association, on the subject of The Corrugated Iron Agreement, he pointed out that this part of the sheet metal industry will continue at about its same rate of acceptance but that curtain wall construction will soon outstrip the corrugated iron applications in importance and that this rapidly growing sheet metal application will soon become a major part of the new building construction procedure. He felt that the present agreement between the structural iron workers and the sheet metal workers was the best arrangement that could be worked out under the present situation and that conditions in the years ahead will prove that the recent action was the proper step to take for the best

interest of all concerned. He did agree that many contractors felt they had not been properly represented but reminded them that much of the work that has been turned down by some structural contractors in certain sections of the country has caused the corrugated iron work to fall into the iron workers' hands. He said the only way that the contractors can recover the work to which they are entitled is to go out after all of the work there is to be had and to bid it as if they really needed the job.





L. L. Narowetz

Angelo Hoffman

"Confusion"

Mr. Bennett Chapple, Sr., assistant to the President of Armco Steel Corp., Middletown, Ohio, sparked the Monday luncheon with his stirring speech on Confusion. He stated that confusion is as old as life itself and that all of our present responsibilities are an outgrowth of civilizations that have progressed down through the ages, all of which have come into power by being able to face confusion and to overcome it by making a decision based on the experiences learned through the development of the previous civilization. He stated that our present Federal Government has attained a new high in its state of confusion and that the taking over of the steel companies was brought about by a lack of understanding of everyones' problems. He concluded with the thought that labor laws could be best made by the individual states because they alone understand the problems of the locality in which the problems arise and that the future way of our national life is to be determined by each voter who will go out this fall and cast a vote in favor of the America in which we all believe.

Problems of Our Industry

Committees on Compensation Insurance, Contractor Insurance, Business Administration, Special Activities, Task Group to Plumbing and Heating, and Public Utilities composed a forum on the subject Problems of Our Industry. Each of the committees reported its achievements during the past year and its plans for the coming year. The report from the committee on insurance drew the largest number of comments. This report gave a number of recommendations for the contractor to consider, namely:

a) Have one qualified insurance company handle the entire insurance plan for the contracting firms

b) Have only one well qualified insurance representative write all the policies

 c) See that policies do not overlap in their coverage (Please turn to page 65)

Degree-Day Method of Estimating Fuel Consumption

S. KONZO

Professor of Mechanical Engineering University of Illinois

The relative costs of various types of fuels as compared with other fuels is easy to compute using examples and charts compiled on the latest data available.

In Part 3 of this series of articles an equation was given for estimating the fuel quantity, O, as follows:

 $Q = (24 \, HN) / [t_{\parallel} - t_{e}) \, (F) \, (e)],$ where Q is the fuel quantity required for the season,

H is the design calculated heat loss for the structure, in Btuh.

(t₁ — t_o) is the design temperature difference, F, from indoor air to outdoor air.

(f) is the calorific, or heating value of the fuel, and

(e) is the overall efficiency of fuel utilization.

Practical working values for (f) and (e) were also presented in Part 3. In the present article, several examples will be given showing the application of the equation to practical cases.

Practical Tables for Fuel Consumption Factors

The equation is sufficient in itself. However, since six separate terms are involved, five of which have to be calculated beforehand or selected from some authoritative reference source, the calculations can become tedious and be subject to errors in arithmetic. For the purpose of making the equation more usable, the

writer has presented the information in the form of six practical tables, as follows:

Table 1-A. For Soft Coal. Hand-Fired with Manual Control Only. Table 1-B. For Soft Coal. Hand-

Table 1-B. For Soft Coal. Hand-Fired with Thermostatic Control, or Stoker Fired. Table 1-C. For Hard Coal. Hand-

Fired with Thermostatic Control, or Stoker Fired. Table 2. For Liquid Fuels, including

L.P. Gas.

Table 3. For Gas Fuel.

Table 4. For Electrical Heating by Resistance Elements.

These tables give data in a consistent set of units. In each case, the tabular values show:

"Fuel Consumption for each 10,000 Btuh design heat loss and for each 1000 degree-days"

In these tables the efficiency values have been established in preceding articles of this series.

Examples Showing Application of Tables

Consider an installation in which the following conditions apply:

 a) Design temperature difference for locality — 80 deg F.

- b) Design heat loss for structure, calculated.
 - 1. Above first floor -- 45,000 Btuh
 - 2. Basement 15,000 Btuh
 - 3. Total for Structure 60,000 Btuh
- c) Degree-days for the locality 5,600 DD per season.

Note that the design heat loss is desired for the entire structure including the basement. In the case of a one-story structure built upon a concrete floor slab, the heat loss for the floor should be included. Similarly, for the case of a structure built over a crawl space, the heat loss through the first story floor to the crawl space should be included. In other words, the entire structure should be considered as a calorimeter, or heat dissipating box. The Btu input to the furnace escapes to the outdoors through many devious paths, and it is immaterial to any single Btu whether it escapes through a first story wall or through the basement

For this particular example, only the values in the vertical column headed by "80" are of importance. A heating contractor, therefore, whose installations are confined to a locality in which a single design temperature difference will apply, can cross out all the other vertical columns. Whatever value is finally selected from the vertical column headed by "80" is then to be multiplied by "6" (to take care of the 60,000 Btuh design heat loss) and then by "5.6" (to take care of the 5,600 degree-days). In other words, the tabular values are to be multiplied by "6 x 5.6" or "33.6".

Example 1

Soft coal, hand-fired with manual control only.

Assume the soft coal has a heating value of 11,500 Btu per lb.

The factor from Table 1-A is 0.24 tons per 10,000 Btuh heat loss and for each 1,000 degree-days.

The estimated seasonal consumption is: 0.24 x 33.6 or 8.1 tons.

Example 2

Soft coal, stoker fired.

Assume the soft coal has a heating value of 11,500 Btu per lb.

The factor from Table 1-B is 0.20 tons.

The estimated seasonal consumption is 0.20 x 33.6 or 6.7 tons.

Example 3

Hard coal, hand fired with thermostatic control.

Assume the hard coal has a heating value of 11,500 Btu per lb.

The factor from Table 1-C is 0.16 tons.

The estimated seasonal consumption is 0.16 x 33.6 or 5.4 tons.

Example 4

Oil-fired furnace specifically designed for oil combustion. No. 2 oil to be used.

The factor from Table 2 is 26.8 gallons,

The estimated seasonal consumption is 26.8 x 33.6 or 900 U.S. gallons.

This is equivalent to 900/1.2 or 750 Imperial gallons.

Example 5

Gas-fired furnace to burn propane gas.

The factor from Table 2 is 40.8 gallons.

The estimated seasonal consumption is 40.8 x 33.6 or 1370 gallons.

In Imperial measurement this gives the equivalent of 1141.6 gallons.

Table I-A-Coal Consumption Factor for Soft Coal, hand fired with manual control only

Heating Value of Coal, as fir				Desig	n tempe	rature di	fterence.	F			
Btu per lb.	50	55	60	65	70	75	94()	85	90	95	100
9,000	0.48	0.44	0.40	0.37	0.35	0.32	0.30	0.29	0.27	0.26	0.24
9,500	0.46	0.42	0.38	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.23
10,000	0.44	0.40	0.36	0.34	0.31	0.29	0.27	0.26	0.24	0.23	0.22
10,500	0.42	0.38	0.33	0.32	0.30	0.28	0.26	0.24	0.23	0.22	0.21
11,000	0.40	0.36	0.33	0.31	0.28	0.26	0.25	0.23	0.22	0.21	0.20
11,500	0.39	0.34	0.32	0.29	0.27	0.25	0.24	0.22	0.21	0.20	0.19
12,000	0.36	0.33	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18
12,500	0.35	0.52	0.29	0.27	0.25	0.23	0.22	. 0.20	0.19	0.18	0.17
15,000	0.34	0.30	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.17
15,500	0.32	0.29	0.27	0.25	0.23	0.32	0.20	0.19	0.18	0.17	0.16

Tabular values show coal consumption in "Tons for each 1,000 Bruh design heat loss and for each 1000 design days"

Table 1-8—Coal Consumption Factor for Soft Coal, Hand Fired with Thermostatic Control or Stoker Fired

Heating Value Coal as Fired			De	sign tem	perature	difference	e. F				
Bro per lb	50	55	no-	16.5	70	75	NO	85	90	95	100
9,000	0.41	0.42	0.54	0.52	0.29	0.27	0.26	0.24	0.23	0.22	0.2
9,500	0.50	0.35	0.52	0.30	6.28	0.26	0.24	0.23	0.22	0.21	0.1
10,000	0.37	0.14	0.31	0.28	0.26	0.29	0.23	0.22	0.20	0.19	0.1
10,500	0 45	0.32	0.29	0.27	0.25	0.23	0.22	0.21	0.20	0.19	0.1
11,000	11.54	0.30	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.1
11,500	0.32	0.29	0.29	0.25	0.28	0.21	0.20	0.19	0.18	0.17	0.1
17,000	0.51	0.20	0.20	0.24	0.53	0.20	0.19	0.18	0.17	0.16	0.1
8.7, 500	0.40	0.37	65.74	0.23	11 30	0.20	17.190	0.17	0.16	0.16	0.1
13,000	0.28	0.26	0.24	0.25	0.20	0.19	0.18	0.17	0.16	0.15	0.1
13,500	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.16	0.15	0.14	SYL

Tabular values show coal consumption in "Tons for each 10,000 Btuh design heat loss and for each 1000 degree-days"

Example 6

Gas-fired furnace burning natural gas, in a locality where the billing is made in terms of "therms."

The factor from Table 3 is 37.5 therms.

The estimated seasonal consumption is 37.5 x 33.6 or 1260 therms.

Example 7

Gas-fired furnace burning manufactured gas having a heating value of 550 Btu per cu ft, in a locality where the billing is made in terms of "M cu ft."

The factor from Table 3 is 6.8 M cu ft.

The estimated seasonal consumption is 6.8 x 33.6 or 229 M cu ft.

Example 8

Electrically heated furnace supplied with resistance wires.

The factor from Table 4 is 879 kilowatt-hours.

The estimated seasonal consumption is 879 x 33.6 or 29,500 kw-hrs.

Since each of the estimated fuel consumption values are for the same structure in the same locality, the values are comparable. Hence, it would be possible to obtain estimated fuel costs for each of the above examples by multiplying the fuel magnitudes by the unit costs for the fuel.

General Summary of Comparative fuel Costs

As stated previously, the fuel estimates made by this method are at best only good approximations. Depending upon the care used in obtaining the design heat loss for the structure, wide variations in results can be expected. Furthermore, degree-day values for any given locality do vary from season to season, as explained in Part 1, so that the final fuel consumption figure can be considered only as an average value. In spite of these inherent limitations, however, the necessity often arises to satisfy a homeowner who demands some sort of factual evidence of fuel consumption estimates. This is particularly true, when the homeowner is considering such unusual heat sources as LP gas or electricity. The mere assertion by the heating contractor that electrical heat is not practical for that particular locality does not carry much weight. If the homeowner can be shown the best figures currently available, he may be persuaded to more readily consider the commonly available fuels.

Much emphasis is placed in the selling market on efficiency, in fact far beyond its actual importance. Efficiency alone is not the sole criterion of cost. For example, if a home "sat on top" of a small gas field from which the gas was otherwise being wasted, or if the home was piped with hot water from a volcanic hot spring, it would make little difference if the efficiency were only 20 percent, the fuel cost in both cases would be nothing. Or, to cite a converse case, even with an efficiency of 100 percent assumed for electrical resistance heating, the final operating cost will not be inexpensive in most localities.

An inspection of the fuel consumption equation shows that although a homeowner has no control over the number of degree-days that occurs in a given locality, he does have some control over the magnitude of the design heat loss. The use of adequate weatherproofing by means of insulation, storm sash, weather-stripping, storm doors, and caulking is essential. Furthermore, since every portion of the entire house is under consideration, the weatherproofing of a slab floor, or of a floor over a crawl space, or of a basement window is just as important as the weatherproofing of the living room window.

The experience of the past few years indicates the danger of quoting a homeowner only a dollar and cents value for fuel consumption. With widely varying fuel prices from month to month, an estimate of say "\$80 to heat your home" is not as good an estimate as "\$80 to heat your home with gas at 6 cents per therm."

Since the subject of electrical heating has attracted some attention in the press, and since many ramifications of the subject need consideration, future articles in this series will be devoted to electrical heating, both by resistance elements as by some newer forms of equipment.

Table I-C-Coal Consumption Factor for Hard Coal, Hand Fired with Thermostatic

Control or Stoker Fired

Heating Value of coal, as fire				De	sign tem	perature	difference	e, F			
Btu per lb.	50	55	60	65	70	75	90	85	90	93	100
9,000	0.55	0.30	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.17
9,500	0.32	0.29	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.17	0.10
10,000	0.30	0.27	0.25	0.23	0.22	0.20	0.19	0.18	0.17	0.16	0.1
10,500	0.29	0.26	0.24	0.12	0.20	0.19	0.18	0.17	0.16	0.15	0.1
11,000	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.16	0.15	0.14	0.14
11,500	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.15	0.14	0,1
12,000	0.25	0.23	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.13
12,500	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.13	0.1.
15,000	0.23	0.21	0.19	0.18	0.17	0.15	0.14	0.14	0.15	0.12	0.1.
13,500	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.1

Tabular values show coal consumption in 'Tors for each 10,000 Btuh design heat loss and for each 1000 degree-days.''

Table 2-Oil Consumption Factors.

Heat	ing	value.											
						Design	tempera	ture ditl	erence. I	F			
Be	u p	er lb.	56	99	60	65	70	75	19.61	85	90	95	100
For	fur	naces	specificall	y design	ned for	oil comb	nestron						
No.	1	oil	44.4	40.4	37.1	54.2	31.8	29.6	27.8	26.2	24.7	29.4	22.2
No.	2	oil	42.8	39.0	35.7	33.0	30.6	28.6	26.9	25.2	23.8	22.6	21.4
For	fur	naces	converted	to oil	cumbust	108							
No.	1	oil	50.8	46.2	42.4	39.1	36.3	33.9	31.6	29.9	28.2	26.8	25.4
No.	2	oil	49.0	41.5	40.8	37.7	35.0	32.7	30.6	28.6	27.2	25.8	24.5
For	fur	naces	designed	for liq	ueñed pe	troleum	gas (LP	53					
Prop	ane		65.2	59.3	54.4	50.2	46.6	43.5	40.8	59.4	36.3	34.4	32.6
Butz	ne		58.8	53.5	49.1	45.3	42.1	39.2	56.8	34.6	32.7	31.0	29.4

Tabular values show liquid fuel consumption in "Gallons for each 10,000 Btuh design heat loss and each 1000 degree-days".

The Values are in U. S. gallons. The values when divided by 1.2 (or multiplied by 0.833) will give oil consumption factors in terms of the British Imperial Gallon.

Table 3-Gas Consumption Factors.

Heat	ing Value				Design	tempera	ture diffe	rence.	p			
Be	u per lb.	50	55	60	65	70	75	80	85	90	95	100
For	localities	where	gas is so	ld in u	nits of t	herms.						
	000 Btu r therm	60.0	54.6	50.0	46.2	42.9	40,0	37.5	35.3	33.3	31.6	30.0
For	localities	where	gas is so	ld in un	its of A	f cu. ft.,	or 1000	cu. ft.				
	550	10.9	9.9	9.1 .	8.4	7.8	7.3	6.8	6.4	6.1	5.73	5.45
	800	7.5	6.8	6.25	5.8	5.35	5.0	4.7	4.4	4.2	3.95	3.75
	1000	6.0	5.45	5.0	4.6	4.3	4.0	3.75	3.99	3.35	3.15	3.0
	1050	5.7	5.2	4.75	4.4	4.1	3.8	3.6	3.33	3.2	3.0	2.89
	1100	5.45	4.95	4.55	4.2	3.9	3.65	3.4	3.2	3.03	2.9	2.7
	1150	5.2	4.75	4.35	4.0	3.75	3.9	3.25	3.1	2.9	2.75	2,6
	1200	5.0	4.55	4.2	3.85	3.6	3.35	3.15	2.95	2.8	2.65	2.5

Tabular values in first line show gas consumption in "Thems for each 10,000 Bruh design heat loss and for each 1000 degree-days"

Tabular values in next seven lines show gas consumption in "Number of thousand cubic feet (M cu. ft.) of gas for each 10,000 Btuh design heat loss and for each 1000 degree-days"

Table 4-Electrical Consumption Factors.

Htu per Heat	ting Vi	lue									
kw-hr	50	9.5	60	65	70	75	90	85	90	91	100
3413 Beu											
per kw-hr 1	1406	1278	1172	1082	1004	937	879	827	781	740	703

Tabular values show electrical consumption in "Kilowatt-hours for each 10,000 Btuh design heat loss and for each 1000 degree-days." These values are for resistance heating in which the efficiency of energy conversion is considered as 100%.

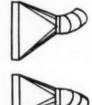
Pattern Development for

Rectangular to Round Compound Angular Fitting

Hugh B. Reid

Professional Mechanical Engineer

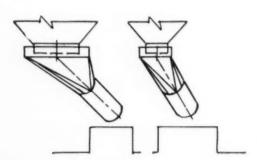
T HE COMPLICATED nature of this problem and the time required for pattern development would make its use impractical; however, there are conditions where its use is imperative.



In a duct system for ventilation or exhaust, the design draftsman would get the required result with the combination of a rectangular to round fitting and an elbow, as shown in the drawing at the left.

In the design of chutes for conveying sand, grain, etc. from a fixed hopper to a fixed point on a machine that has a set position on a production line, the rectangle to round compound fitting would be the practical solution, the obvious reason being that elbows add friction and friction retards the flow of material in either mechanically operated or gravity systems. The drawing below illustrates the practical application of the pattern problem being presented.

The following is a step by step solution to the pattern development problem:

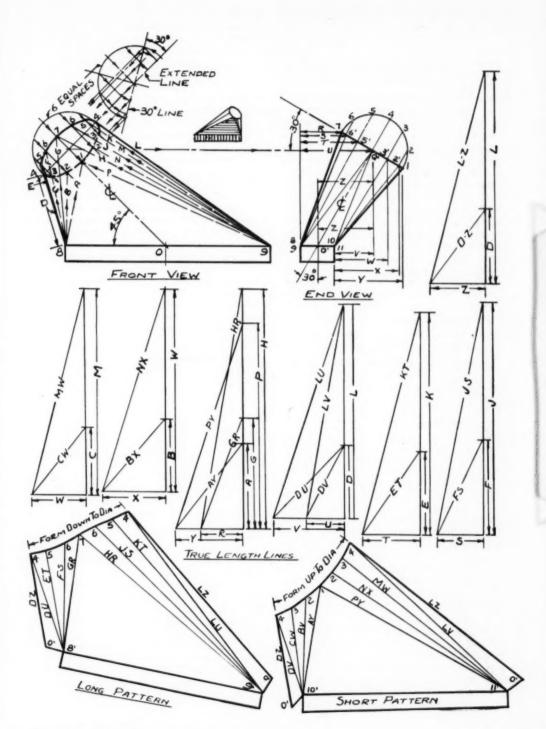


To construct the front view drawing:

- Draw the horizontal line 8-9. Establish the center point θ and through this point draw the line marked C at 45 deg to line 8-9.
- (2) Measure the required length establishing the point Q and through this point draw a line at 90 deg to the center line.
- (3) With Point Q as center and radius Q-E draw a 180 deg arc, divide the arc into six equal spaces, and through the points draw lines parallel to the center line.
- (4) Extend the diameter line E·K and establish the point R'. With this point as center and radius Q·E draw a 180 deg arc, divide the arc into six equal spaces and through the points draw lines to intersect the extended line.
- (5) Through point R' draw a line equal to the given angle on the end view which is 30 deg. With R' as center revolve the intersection points of the equally spaced points on the extended line to the 30 deg line.
- (6) From the intersection points on the 30 deg line, project lines parallel to line EK and intersecting the corresponding lines drawn through the equally spaced points on the half circle of the front view. Through these developed points draw the ellipse which represents the true front view of the round section of the transformer.
- (7) From points 8 and 9 draw lines to points 1, 2, 3, 4, 5, 6, 7, and mark these lines A, B, C, D, E, F, G, H, I, K, L, M, N, P.

To construct the end view drawing necessary for the pattern development:

Note that the projection of the round section on the end view is not true. The purpose of the end view is to determine the distances that lines A to P inclusive project horizontally in relationship to lines 8-9 and 10-11 on the rectangular section of the end view. The lines marked



R. S. T. U. V. W. X. Y. Z. are accurate enough for all practical purposes in developing patterns for this type of fitting. Any slight adjustment required can be made when fabricating the collar section to the rectangular to round fitting.

- Draw the horizontal line marked 9-11, establish the center point θ' and through this point draw a line at 30 deg to line 9-11.
- (2) Project point Q from the 45 deg center line on the front view to the 30 deg center line on the end view, mark this point Q' and through this point draw a line perpendicular to the center line.
- (3) With Q' as center and radius Q-E draw a 180 deg arc. Divide the arc into six equal spaces and through the points draw lines parallel to the 30 deg center line and intersecting the diameter line 1-7. From points 9 and 11 draw lines to intersect the points on the diameter line.
- (4) From point 9 on the rectangular end, project an extended line and from this line draw horizontal lines to points 7, 6', 5', Q'. Mark these lines R, S, T, U.
- (5) From point 11 on the rectangular end project an extended line and from this line draw horizontal lines to points Q', 3', 2', 1. Mark these lines V, W, X, Y.

To Layout the Long Pattern:

- Draw a horizontal line equal in length to line 8, 9, on the front view and mark the points 8', 9'.
- (2) Draw a right angle, transfer lines H and G from the front view to the vertical leg and line R to the horizontal leg. The developed lines HR, GR, are true length lines. With 8' as center and radius GR draw an arc. With 9' as center and radius HR draw an arc to cut the arc drawn from 8'. Mark the point 7.
- (3) Draw a right angle. Transfer lines I and F from the front view to the vertical leg and line R to the horizontal leg. The developed lines IS and FS are true length lines. With B' as center and radius FS draw a long arc. With B' as center and radius IS draw a long arc. Set a compass at the equally spaced distance 4, 5 on the half circle and from point 7 as center cut the arcs drawn from points B', B'. Mark the points B.
- (4) Draw two right angles. Transfer lines E, D, K, L, to the vertical lines and T and U to the horizontal lines. Draw the developed lines ET, DU, KT, LU, and transfer these lines to the corresponding position on the layout. From point 6 as center and radius 4, 5, cut the arcs and mark the points 5' and 4'.
- (5) Draw a right angle. Transfer lengths D and L from the front view to the vertical leg and length Z from the end view to the horizontal leg. Developed lines DZ and LZ are true length lines.
- (6) With LZ and DZ as radii and point 4 on the layout as center draw long arcs. With distance 8, 07 as radius and points 8', 9' on the layout as center cut

the arcs drawn from points 4. Draw the lines 4, θ' , 8' and 4, θ' , 9'.

To Layout the Short Pattern:

- Draw a horizontal line equal in length to line 8, 9 on the front view and mark the points 10', 11'.
- (2) Draw a right angle. Transfer lines A and P from the front view to the vertical leg and line Y from the end view to the horizontal leg. The developed lines AY, PY, are true length lines. With 10' on the layout as center and radius AY draw an arc. With 11' as center and radius PY draw an arc to intersect the arc drawn from 10'. Mark the intersection point I.
- (3) Draw right angles. Transfer lengths N, M, L, B, C. D, from the front view to the vertical legs and lengths X, W, V, from the end view to the horizontal legs. The developed lines NX, BX, MW, CW, LV, DV, will be true length lines. Working from points 10', 11', on the layout, transfer the developed lines from the triangles to the layout in their proper sequence and mark the points 2, 3, 4.
- (4) With 4 on the layout as centers and radii LZ, DZ draw arcs. With 10, 0' on the end view as radius and 10', 11' on the layout as centers cut the arcs drawn from points 4. Draw lines 4, 0', 11', and 4, 0', 10'.

Add allowances for the collar on the rectangular end and for necessary seams and joints. Mark patterns for forming.

Heating and Ventilating for a Large Brooder House

Seymour Hesche of Lowell, Michigan has recently built a new brooder house in which the baby chicks are assured of healthy living conditions during the winter season. The building consists of two wings branching out from a main bay, each wing houses 10,000 chicks. The building is 385 feet long, 52 feet wide and 8 feet high. Two inch thick wool bats are used to insulate the entire wall and roof area.

Two oil fired forced warm air heating units with 500,000 Btu capacity each were installed by the Ada Heating and Plumbing Company of Ada, Mich. The equipment has been installed to provide each wing with its own heating system. The return air intake is adjustable and can be set to bring in 100 per cent outside air or for any ratio of recirculated and outside air desired. Each wing has six exhaust fans that are automatically controlled by an individual micro switch thermostat attached to each fan circuit. The fans are installed in the windows to reduce drafts caused by the glass exposure.

The supply air system for each wing is composed of a split run, one to each side of the wing. The warm air is not discharged through conventional grilles but is dropped to within 12 inches of the floor via 7 inch ducts. There are 22 of these drops in each wing. When the chicks are young they are confined to a small area directly under the 7 inch drop to assure them of fresh warm air.

Delivery Trucks Are Portable Billboards

W. FRANK WELCH President, Advertiser, Inc.

Few firms realize how company prestige can be built through a fleet of clean, freshly painted trucks or service cars driven by courteous, uniformed drivers. A firm's trucks can serve effectively as silent salesmen, helping to build the reputation of the business.

THE MEN WHO drive your delivery cars or trucks, or any official company car, as well as the vehicles, themselves represent your business to the public just as surely and just as significantly as do your sales force and your advertising, even though this means of creating an impression is much less direct than the other media.

Delivery men or service men, and the trucks or cars they drive can make either a strong favorable impression on the public or they can create a bad impression. They occupy a strategic position in the business picture, from where they can exert a strong influence on the effectiveness of the direct advertising dollars you spend and on the other phases of your business which tend to build public acceptance.

There is prestige to be gained for your business in pleasant, courteous drivers, uniformed or neatly dressed, and in trucks and other service vehicles in good repair, freshly painted, neatly lettered. Every man and every vehicle is a moving advertisement for you—good or bad. Men and vehicles can build prestige, good will and acceptability—or they can destroy reputation, create ill will and raise sales resistance.

Coal dealers meet the challenge

The National Coal Association, through its local Coal Heating Service groups all over the country, provides an excellent case in point. Coal men face a difficult task nowadays in meeting the competition of piped fuels. Those who deal in gas and oil make a point of the cleanliness of these fuels for domestic use. Coal men recognize this point. So they stress the need for keeping coal hauling equipment in top condition. They urge that trucks be kept freshly painted and washed. They urge the drivers to be in uniform and as neat as possible from head to toe. They know a shabby, dirty coal truck emphasizes the very point their competitors are hammering away at. And what about the psychology of association? If a coal truck is dirty, and the driver of a coal truck is dirty, doesn't it make a person inclined to conclude that the product is dirty?

Every business builds character over the years. When painting your trucks or your service cars, consider the character of your business. Paint the trucks and letter them in the character of the business. Colors and lettering for a florist's delivery car obviously would be in a completely different character than the colors and the lettering for a coal truck.

The manner in which trucks and delivery cars are driven is also important. Drivers should be courteous on the street or highway—just as courteous as when making a delivery. Your trucks are a mobile advertisement for you. They make thousands of impressions every day; be sure they are good ones.

Recently a large truck, rolling along a busy highway, was observed cutting in and out of traffic and ignoring the rights of other vehicles. Finally a motorist overtook the truck and called to the driver to stop. With car and truck pulled off to the side of the road, the man alighted from his car and walked back to address the truck driver. "You," he said, " are the kind of driver that should be ruled off the road. It is your type of individual who makes highway travel dangerous and creates the ill will against trucks on the highways on the part of people generally. You are destroying my business by the manner in which you drive your truck on the highway."

The man was one of the Fruehauf brothers, the largest builder of trucking equipment in the world.

Favorable impressions created by courtesy

Such impressions are among the most important influences with which we have to deal as far as motor equipment on the highway and on city streets is concerned. Large as well as small business people all realize how much ill will can be developed by their service cars. There should be a special course of instruction for the purpose of teaching drivers proper road courtesy.

Primarily, the sales viewpoint of the driver should be sharpened in order that his moving billboard (for that is what it is) may actually win friends and influence the people who purchase your product.

Wherever the driver personally contacts the customers, there every company should find itself represented. Courtesy, cleanliness, consideration and a pleasant manner all add to potential customer good will.

Here is an example of how one business used its fleet of trucks as good will ambassadors. This firm made public announcements through the newspapers and by radio broadcasts that its drivers had been instructed to be on the lookout for stranded motorists during the winter months when driving conditions were made difficult. The ads even urged motorists in trouble to call the offices of the firm and promised that a truck or service car would be dispatched to their aid.

This is an extreme example, but it serves to illustrate how one institution definitely tied in its men and its trucks with its general advertising program.

Substantial Performance of a Contract

ALBERT W. GRAY

Court decisions on the recovery of unpaid balances of contracts depend upon the substantial performances thereof. Incompleted contracts do not necessarily disallow recovery, providing the contractor can prove honest intent.

A CONTRACT FOR the installation of an air conditioning system in a Philadelphia theater stipulated the price as \$8,200. After \$6,400 had been paid, the owner refused to make further payments until certain contract provisions had been performed.

When this theater had been opened the owner had complained to the contractor of various omissions, but without satisfaction. While some minor items were adjusted, little or no effort had been made to adjust the automatic controls of the system properly.

When the contractor finally sued to recover this unpaid balance he claimed that irrespective of a failure to perform some provisions of this contract, he had substantially performed and was entitled to the amount provided by the contract less the necessary expenses for completing the work.

Incomplete contract no bar to recovery

The determining feature in the right of a contractor to recover for a substantial performance of his contract, where the work is incomplete in some few and unimportant details, is not whether the contract is completely performed but whether this failure to perform has occurred in spite of the honest intention and effort of the contractor to fulfill his obligations.

In affirming the judgment against the contractor the Pennsylvania court made the comment on this feature of honest intention to perform, that the contractor knew exactly what was required to perfect this air conditioning system and although some minor defects had been adjusted, he had made no effort to remedy the others.

The precedent followed here by the court in holding that the contractor was not entitled to recover under his contract, since his failure to carry out its terms lay in the lack of an honest effort to do so, was established by a Pennsylvania court approximately a century ago.

At that time, a contract had been made for the construction of a bridge across the Susquehanna River to be completed by January 1st of the following year. Through circumstances over which the contractor had no control and for which he was in no way responsible he was forced to abandon the work before it had been completely performed.

In its decision awarding the contractor the amount agreed upon less the cost necessary for completing the unfinished portions of the bridge, the court stated that the general rule read once that a contract must be performed in all its parts and if there was a failure in any particular no recovery could be had however meritorious might be the claim for services actually performed in the fulfillment of the undertaking.

Discharge of contract required full performance

The consequence of such a rule was that it bestowed on one of the parties to the contract without compensation to the other the advantages derived from the labor, time and money of the other. Since performance on one side was regarded as a condition precedent to the demand for payment by the other, nothing short of a perfect discharge of every part of the undertaking was accepted as a sufficient fulfillment and this was particularly so when the contract involved skill and labor on one side to be compensated by money on the other.

The desire to remedy the injustice inflicted by such a law long ago induced the courts to make an exception, or rather, a modification of this principle which however perfect it may have been in theory, worked harshly in a large variety of instances.

The law today states: "Where a party, acting honestly and intending to fulfill his contract, performs it substantially but fails in some comparatively unimportant particulars, the other party will not be permitted to enjoy the fruits of such imperfect performance without paying a fair compensation according to the contract, receiving a credit for any loss or inconvenience suffered. Of course this indulgence is not to be so stretched as to cover fraud, gross neglect or obstinate and wilful refusal to fulfill the whole engagement or even a voluntary and causeless abandonment of it."

A typical situation, although it related to roofing rather than air conditioning equipment, illustrates the justice of this rule. A Mississippi contractor stipulated to furnish material and construct the roof of a warehouse in that state. After the corrugated iron roof had been applied it was badly damaged by a wind storm.

One witness characterized the roof when finished as not a perfect job but "about as good a job as you could expect with a roof of that kind," while the opinion of others was that, "The entire roof should be taken off and replaced by another."

All the defects indicated by the architect, however, had been remedied by the contractor and the architect had certified that 95 per cent of the contract requirements had been met.

Ruling on substantial but incomplete performance

In granting a recovery of the contract price less \$250 as representing the cost of repairs for defects, the Supreme Court of that state made this comment on substantial though not complete performance of contracts:

"The common law required literal performance of building contracts but the American courts hold generally that substantial performance of such contracts will support a recovery. Three reasons are given for that holding. One is that materials and labor upon a building are such that even if rejected by the owner, he receives benefits therefrom. Since the owner receives the benefits of the builder's labor and materials it is equitable to require the owner to pay for what he gets.

"The second reason is that it is next to impossible for a builder to comply literally with all the minute specifications in a building contract. And the third is that parties are presumed to have impliedly agreed to do what is reasonable under all the circumstances with reference to the subject of performance."

To these comments the court added the essential condition a contractor must meet before he can avail himself of this remedy granted by the law.

"It is a necessity in support of the foregoing doctrine that the contractor must have acted in good faith and not intentionally failed to perform the contract. The rule of substantial performance cannot be invoked where the failure to perform is wilful, intentional or due to carelessness."

Contractor awarded decision in substitution case

In a New York case that has since become famous, a contract for the construction of a \$77,000 residence contained the clause, "All wrought iron pipe must be well galvanized, lap welded pipe of a grade known as standard pipe of Reading manufacture."

Through an oversight pipe of another manufacture than that specified was used. There was no difference in the quality of the pipe nor its efficacy. Even the architect had failed to notice the variation. Nevertheless this owner insisted on the strict performance of his contract and refused to pay.

The decision of the Court of Appeals of that state in awarding the contractor a recovery read in part:

"There is no general license to install whatever in the contractor's judgment may be regarded as just as good. We must weigh the purpose to be served, the desire to be gratified, the excuse for deviation from the letter, the cruelty of enforced adherence. Then only can we tell whether literal fulfillment is to be implied by law as a condition. This is not to say that the parties are not free by apt and certain words to effectuate a purpose that performance of every term shall be a condition of recovery. That question is not here. This is merely to say that the law will be slow to impute such purpose from the silence of the parties in that regard, where the significance of the default is grievously out of proportion to the operation of the forfeiture. The wilful transgressor must accept the penalty of the transgressor. For him

there is no occasion to mitigate the regard of implied conditions. The transgressor whose fault is unintentional and trivial may hope for mercy if he will offer atonement for his wrong."

A sawmill operator in Mississippi contracted to cut the timber from a tract of land and manufacture it into lumber at \$30 a thousand feet. Hardwood and pine were to be stacked separately in 6-ft stacks. After 186,000 feet of lumber had been cut and manufactured and there still remained 330,000 feet of uncut timber, the owner cancelled the contract because the lumber had been stacked in 8-ft instead of 6-ft stacks.

This illustrates the injustice of that old doctrine of complete performance, that was an inheritance from the law of an eye for an eye of ancient days. It is the line of the poet, "This isn't fair dealings" and fair dealings demanded a recovery for substantial performance when minor omissions have occurred through no lack of good faith on the part of the contractor.

"Whether the lumber was stacked in 6-ft or 8-ft piles was immaterial," said the court. "Where a contract has been substantially performed the party so performing may recover as for a completed performance, less such damages as the other party may have been put to by reason of the matters not performed."

1834 Pennsylvania decision set precedent

A builder in Pennsylvania brought a lawsuit in 1834 to recover a balance claimed to be due on a contract for the construction of a warehouse in which he had stipulated "to fill in all the brick work with mortar or what is usually termed flushing in, or filling in all the openings at each corner of the bricks with mortar as they are laid."

After the warehouse had been built it appeared that all the courses of the brick had not been flushed according to this contract and that the failure to do so detracted from the strength of the building in sustaining the designed load of unusual weight.

The owner refused to pay on this ground. The decision of the action brought by this builder is probably one of the first instances where the rule was applied that is the law today.

"The result is that as the building, as finished, though less fit than it was stipulated to be, the imperfection in its construction did not reach the entire consideration and the builder was properly allowed to recover his demand, less a sum sufficient to compensate his defective execution of the contract."

REFERENCES

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Roof Tops of Paris

LAWRENCE E. GICHNER

Sheet Metal Contractor

Impressions of an American Sheet Metal Contractor in the city of cathedrals and museums.

PARIS 15 A strange and fascinating place for the visiting roofing and sheet metal contractor from America. It is a different world in terms of tools, materials, and wages.

For instance, to see hand bellows used to fire charcoal, curved wooden mallets to beat metal roofing into shape, and carbide torches for soldering, gives the observer the feeling either of being in a land of make believe or of having been transported back into the distant past.

Sheet metal on the Eiffel Tower

When a person plans to spend some time in a community, the sensible thing is to get the lay of the land by ascending some high point and locating important landmarks in relation to one another. In our National Capital, it is the Washington Monument, in New York,

Mechanic with unusual mallet hammering barge strip on wall coping.

the Empire State Building, and in Paris, that world renowned structure, the Eiffel Tower.

We made a bee line for the Eiffel Tower, and on the 300 foot landing we met an antique dealer friend from New York and his bride writing post cards. On the 350 foot landing we met some French fellow-colleagues in the sheet metal profession repairing the roof. They told me they earned 140 francs an hour. At 350 francs to the dollar on the legitimate exchange, these mechanics were earning 40 cents an hour, a startling contrast to the \$2.87½ plus 10 cents an hour welfare fund paid at home.



Workman doing soldering job on the Eiffel Tower. Note the old type of hand bellows (circled) for starting charcoal firepots.

The view of Paris from the top landing, 900 feet above the street, is magnificent. One can see for miles around and observe the Seine River curling like a twisting snake under some 36 bridges, as it winds its seven miles through Paris. After a long look about, I was standing among a group of visitors waiting for the elevator to take us down to earth, when I heard a tall elderly gentleman say, with a Southern accent, "Honey, you often dreamed about coming, but did you ever believe you'd really get here?"

Wriggling through the crowd to him, I asked, "Stranger! What part of the States are you from?" "I'm originally from Kentucky," he replied, "but for the last twenty years we've been living in Alexandria, Virginia."

"Why, our firm has just completed installing a copper roof on the George Washington Masonic Memorial in Alexandria. My name is Gichner," I told him.

"Why, you're Gichner, the roofer," the gentleman commented. "We've known of your firm for years. And by the way, I've got trouble with our roof at home." So, on the spot, 900 feet in the air over Paris, we arranged for a meeting and a job when we both got home again, three thousand miles away.

Zinc roofs predominate in Paris

Looking down over the city of Paris, three colors predominate: the dusty white of the sandstone buildings, the green of the trees, and the gray of the roofs. This gray color puzzled me, for in textural aspect it was not easy to identify. My first impression was that these gray roofs must be made of some kind of coated sheet, like galvanized iron, different only in outward appear-

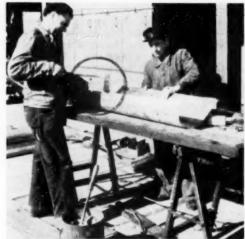


Installing an expansion joint in new gutter on the Eiffel Tower, 350 feet above the street. Note steel supports for scaffolding, ance, but closer scrutiny revealed them to be made of

zinc throughout.

Since I have frequently observed the failure of zinc gutters, spouts, and cornices in the city of Washington, a person can imagine my amazement to see acres and acres of zinc roofing in the capital of France.

After I was convinced that they were zinc, my next thought was that I must find splits, fissures, buckling, sagging, and disintegration, since I knew it existed in the metal that had proved inadequate at home. Perplexed and astounded, I found none of the anticipated defects.



Soldering a seem on a new gutter lining for Eiffel Tower. Note interesting hammer type soldering iron (circled) of French make.

What could make the difference? Why should zinc cause trouble in America as a roofing medium and be such a success in France? Was it the same metal? Has France a different climate? Why, when zinc is in such short supply in the United States, do you worry about finding additional uses for it?

Zinc possesses two features strongly in its favor. It costs less than copper. It works easily and requires less labor to install. A saving in both labor and material are desirable attributes in a strongly competitive market.

What about zinc's endurance in our American climate? Frankly, that answer will take further research, but here are some points to consider that may prove helpful.

The zinc sheets used in Europe are of a much heavier gauge than those used in this country. The climate in Paris is much milder than that we experience on the



Portable hand brake used for on-the-spot forming of pans for better roof being repaired on the American Bank Building, Paris.

banks of the Potomac, with its alternating extremes of heat and cold, but the United States is a large country with many different climatic regions. Instead of trying to blanket the country with the sale of its product, the zinc sheet manufacturer might as well concentrate on those regions which are relatively similar to the European climate and advise against using zinc in those regions where the rigorous climate would be detrimental.



French carbon torch used for soldering operations. This type of torch has been introduced in the United States, but little used.

furthe: zinc research recommended

It is my opinion, however, that the zinc manufacturers should set up a research laboratory, as the copper manufacturers have done so successfully. The copper manufacturers have come forward and admitted they have been in error to recommend soft copper (called "roofing



Standard type of zinc gutter elbows used throughout France, tempered copper") for roofing purposes, when their investigations have since proved that hard copper for roofing purposes is superior from the standpoint of endurance. This change is one of the most important steps in the advance of copper roofing in many years.

While in France, I found some magnificent copper roofs, particularly on the palace at Versailles, that were in an excellent state of repair, and with their beautiful green color were a joy to behold. The battens were curved, half round construction that lapped over the pans, but were not locked to them. The pans were locked and lapped, but not soldered. It is a very intelligent technique from which we can learn much. In addition, the copper is a heavier gauge than what we are accustomed to using in the United States.

Metals like zinc that have failed to be useful in this country can still be made to work successfully with further study and research.

Adjusting the Thermostat

FAMILIES WHO have been fussing with their room thermostat all winter long in an attempt to keep their house comfortable are being advised by the University of Illinois to take a look at the thermostat's location. Recommendations are made in a bulletin prepared by the Small Homes Council, University of Illinois, Urbana.

Does cold air from windows or outside doors, or warm air from a register, radiator, or fireplace flow over the thermostat? Is it on an outside wall, or on a wall heated by hot water pipes, warm air ducts, or a chimney? Do the sun's rays reach it?

For the most efficient operation the thermostat should be located where it can measure temperature which is representative of the air in the house. It should be away from heat sources and drafts. Even the heat from a lamp, television set, or radio under or near a thermostat will affect its operation.

The thermostat should be 2.1½ to 4 ft above the floor. To use a room thermostat properly, the temperature setting should be raised or lowered only one degree at a time until the most comfortable temperature is reached.

Then the thermostat should be left alone.

A thermostat is intended to maintain a uniform temperature. It should be allowed to do its job, and should not be used as a hand operated off-on switch. Frequent adjustment is not necessary.

If it is desirable to raise the temperature, such as after a night setback, set the dial at the desired temperature and not at the top of the scale. A higher setting will not make the temperature reach the desired point any faster. Similarly, setting the dial at the bottom of the scale will not cool the house any faster than if the indicator were lowered only a few degrees. Some conditions justify a change in temperature setting.

A poorly insulated house having low wall surface temperatures or large glass surface areas may require that the thermostat be reset in cold weather as outdoor temperatures vary.

The thermostat setting may be reduced 5 to 10 degrees during night sleeping hours — this can result in fuel savings of 5 to 8 per cent.

Perimeter Heating Pointers

ROGERS FOLLANSBEE

President, Mechanical Home Systems, Inc.

Proper design of perimeter heating systems will help eliminate unsatisfactory performance.

I N THE LAST YEAR or so the perimeter heating idea has caught on like wildfire. And many warm air heating contractors made their first installations.

Where the installation was made in a house with a basement, little difficulty was experienced because there is really nothing new about trunkline and branch distribution systems or extended plenum systems which are normally employed in basement construction. However, in basementless homes with concrete slabs where continuous loop distribution systems were employed, some misunderstandings developed and some installations failed to perform as expected.

An analysis of the reason for these failures could be traced to the difference in performance between a duct fastened to the ceiling of a basement and a duct placed in a concrete slab, each having its own heating characteristics.

Night setback recommendations

When the 1951-52 heating season started, a number of warm air heating contractors received calls from architects, builders and home owners complaining that distant rooms were not heating properly. In some cases the complaint was that the system was just no good. It was not heating the house. However, the experienced contractor usually spotted the difficulty immediately. Where the house was just not heating, it was found in almost 100% of cases that a night setback thermostat had been installed and the home owner had set the thermostat to reduce night temperatures several degrees below day temperatures. Concrete slabs have considerable mass, and if this mass - including the wall of the duct - is permitted to cool, it will take anywhere from five to ten hours to bring the system back to a normal operating condition. In the meantime, slab radiant effects are lacking and the supply air temperature is less than it should be for the actual heat loss.

Night setbacks should never be used in connection with perimeter heating of basementless homes built on concrete slabs. Night setbacks thermostats should be replaced with standard types. Also, the reason for not dropping the temperature at night should be explained to the home owner. At the same time the home owner should be advised that if he wishes to drop temperatures in bedrooms at night, he should simply close down the volume dampers in the bedroom registers.

Another reason for less than satisfactory performance

— including the failure to heat distant rooms — is the habit of setting fan switches entirely too high, with the result that the wall of the duct is permitted to cool down on the off-cycle. This is not too harmful in basement applications where the mass of the duct work is that of the metal only. But the mass of the duct in a concrete slab is not just that of the duct but includes the mass of the concrete around it.

Almost any well designed perimeter system can be balanced out to provide comfort conditions in all rooms in a house simply by taking advantage of the continuous air circulation feature which is inherent in perimeter delivery. Since air directed vertically upward from diffusers located beneath windows cannot strike room occupants, the blower can be operated continuously without burner operation and without producing drafts. To some contractors it may seem logical to make feeders extra large so that distant rooms will be warm enough. This is wrong because the larger the feeder, the lower the velocity in the feeder and the greater the temperature drop.

Performance of continuous loop distribution

In designing continuous loop distribution, the most favorable pipe size for both the loop and feeders is 6 in. diameter, valuing each feeder at 15,000 Btu per hour with a 100 deg F rise through the furnace. When feeders are valued at less than 15,000 Btu per hour, the system becomes sluggish. Too much temperature is lost into the slab on the way to the loop and not enough temperature is maintained in the loop. For long feeder runs it is recommended that the feeder be insulated from the point where it leaves the sub-floor plenum to at least the point where it reaches the near edge of the room which it will ultimately serve.

Another factor in perimeter heating design, which can lead to difficulty if not recognized, is the practice of installing as many diffusers as may be necessary for blanketing all important glass areas in the house. This is correct practice, but it often results in oversizing the supply in such rooms as living rooms and dining rooms where large glass areas are used in the modern home. This oversizing results in a tendency to satisfy the thermostat and cut off the burner before requirements are met in distant rooms. Fortunately, a balance can be achieved by adjusting the diffuser volume damper in the room which is being over-supplied.

Servicing Centrifugal Fans

HAROLD M. NICHOLS

CENTRIFUGAL FANS that have been performing satisfactorily for years sometimes begin to lose their effectiveness due to excessive wear on the thrust bearings. This condition can be brought about by inadequate lubrication and improper belt alignment. The increase in clearance between the housing inlet and the fan wheel will result in:

> Loss of capacity Lower efficiency Air pulsations Unsteady delivery

In extreme cases loss of capacity and efficiency may amount to as much as 30 per cent which is more than enough to wreck the performance of the most liberally designed system.

Variations in clearance

Clearance requirements are widely different for different types of fans. In the backward-sloped bladed fans the inlet clearance must be held to close tolerances for effective operation. It is this type of fan in which most clearance troubles occur.

Backward-sloped wheels require a clearance of not over 1/8 in, for wheels up to 40 in, diameter, and may increase slowly up to 3/16 in, for larger fan wheels. However, the closer the clearance the better the performance.

Where trouble is experienced with backward-pitched bladed fans due to excessive clearance and the fan is of the single inlet type, correction can be made by sliding the fan wheel along the shaft towards the inlet, until it just fails to touch the stationary inlet ring. The single inlet backward-sloped fan wheel usually has a solid back plate and where this is the case, additional clearance at the back has very little effect on its performance. If the fan is of the double inlet type the construction may be

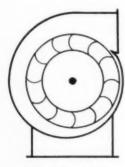
such that the stationary inlet connections can be moved in towards the wheel. An alternate expedient is to attach a soft metal brass or lead collar to the stationary inlet or wheel inlet, whichever is most convenient. This soft collar should barely touch the opposite metal so that it will wear in place when the fan wheel is rotated.

Inlet clearance on material handling fans which give trouble from clogging can be easily corrected by placing a spacing ring between the inlet and housing. A circular section cut from a plywood panel makes a satisfactory spacer for this purpose.

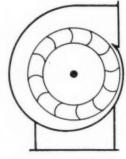
With forward-sloped bladed fans, large inlet clearance not only does not harm the performance but is actually required for stable operation. It reduces pulsating air flow and subsequent vibration of the fan, duets and other equipment. The recommended minimum clearance is ½ in. for wheel sizes of 18 in, diameter up to a minimum of 1 in. for wheels of 4 ft in diameter. Somewhat greater clearances will do no harm.

Moderate clearances have little effect on the performance of radial blade fans. Three-sixteenths an inch clearance for fan wheels 12 in. and less in diameter is satisfactory, while clearances for wheels of greater diameter will range from 3% in. for 2 ft diameter wheels up to ½ in. for wheels 4 ft in diameter. Still larger wheels may have slightly over ½ in, clearance.

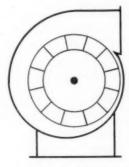
Fans which handle fibrous, stringy, or bulky materials such as cotton, wool, and waste paper, through the fan wheel, require more clearance at the inlet, to prevent clogging of the material at that point. Usual clearance would be an inch or more. This additional clearance has very little effect on the performance of such fans as they are usually equipped with radial or forward-pitched blades.



Forward-pitched blades



Backward-pitched blades



Straight or radial blades

National Affairs Stressed at 41st Michigan Association Convention in Detroit

Outstanding speakers, association name change, feature Michigan Heating and Sheet Metal Association convention in Detroit.

THE 41ST ANNUAL convention of the Michigan Sheet Metal, Roofing, Heating, and Air Conditioning Association was held on Friday and Saturday, April 25-26 at the Fort Shelby Hotel in Detroit.

During the Friday morning session, representatives from the district offices of OPS and NPA were present to answer questions and advise on problems confronting the attending contractors.

An interesting feature of this convention was the concentration of speaking power directed toward national affairs. Prominent speakers presented a forum on the future of the country in discussing national defense, the economy of the country, and inherent rights of citizenship.

De Seversky on concentration of air power

The afternoon meeting was devoted to a talk on "Air Power, Key to Survival" by Major Alexander De Seversky. In his opening remarks, the internationally known aircraft designer stated that in the event of another world conflict, the majority of casualities would not be on the battle front but at home where the tremendous productive capacity of the United States lies. In presenting his analysis of steps to avert war, the speaker urged unification of military strategy planning, and production concentration on air power.

Friday evening the convention enjoyed a mystery bus ride which ended at the Elmwood Casino, Windsor, Canada for dinner and a floor show.

The opening Saturday morning meeting concerned committee reports, activities of the state association, and election of officers. During this meeting, the organization, by popular vote adopted the new name of the Michigan Heating and Sheet Metal Association.

Establishing acceptance of priority system

Following the election of officers, J. D. Wilder, executive secretary of the Sheet Metal Contractors National Association, spoke on association activities, controls, and the necessity of supporting jurisdictional awards by bidding on the work. Mr. Wilder mentioned the efforts

of the national association in trying to establish acceptance in Washington of a simple priority system. He also spoke of efforts to separate ventilation and air conditioning specifications. Local contractors can help with the latter issue in their contacts with architects and engineers.

The afternoon session was opened by Dr. Arnold H. Schneider, professor of business studies at Western Mich-



Bennett Chapple, vice president, Michigan H.S.M.A.



Elmer Stafford, president, Michigan H.S.M.A.

igan College. His interesting analysis of our economic situation involved discussion of defense spending, inflation, and the possibilities of a depression when the present high tide of production is over. Since Dr. Schneider offered no solution to the problems presented, the individual decisions were left in the hands of everyone present.

Steel expansion programs temporarily shelved

Bennett Chapple, vice president of Armco Steel Corp., spoke next and presented his views on the current steel emergency. He stated that many companies including Armco have shelved multimillion dollar expansion programs until the crisis is past. This fact demonstrates clearly the effect government seizure of private property has on our economy and, in addition, endangers the inherent rights of every citizen.

C. W. Nessel, chairman of the Field Investigating Committee, traced the various developments in perimeter heating as he had done at other conventions this year. The basic principle of his method is to supply heat where heat loss occurs, i.e., along the outer walls of the structure. The second fundamental is that the floor must be warm to provide satisfactory heating. During the question period following this talk. Mr. Nessel used diagrams to answer the contractors' problems effectively.

After adjournment in the evening the convention enjoyed the annual banquet and floor show sponsored by the sales auxiliary. Officers for 1952

Elmer Stafford Flint president
Earle Cole Grand Rapids vice president
Art Lange Saginaw treasurer
N. J. Biddle Detroit secretary

Directors

Dewey Cain, Detroit
James Prins, Muskegon
Charles Sharton, Midland
Jack Bullinger, Jackson
Louis Van Spiell, Grand Rapids

Prize Contests Gain in Popularity

BACK IN 1192 the man searching for a route to the Indies and discovering America in the process offered the equivalent of \$40 and a silken doublet to the crew member first sighting land. Was this the first prize contest on record?

Who runs all the prize contests? Perhaps a better way to put it would be: Who doesn't run a contest? Just about every type of person or organization imaginable has made use of contests. Among the contest users listed in Successful Prize Contests are the following: all levels of government, chain stores, colleges, trade associations, clubs, restaurants and hotels, welfare organizations, radio networks, transportation companies, theaters, unions, financial organizations, night clubs, public utilities, and manufacturers of all kinds of products.

An enterprising funeral director in Springfield, Missouri, gave prizes for the best letters on "What To Do at the Scene of an Accident"; a group of Mexican architects ran a contest to discover the ugliest home in Mexico City; and the Talon Corporation, makers of slide fasteners, sponsored a sewing contest and awarded a prize for "courage" to the lone boy among 8,000 entrants.

"What can be accomplished by running a contest?" some will ask. Authors Kaufman and Cone answer this by describing eight objectives that outline just what the prospective contest-holder can accomplish:

- I. Sales Objectives such as sampling a product, meeting competition, changing buying habits, boosting a slumping product, promoting a demonstration, stressing a line, and influencing dealers
- II. Advertising Objectives such as getting new advertising material, discovering new uses for the product, finding a name or slogan, announcing a new product, and introducing new improvements and developments

- III. Public Relations Objectives such as promoting good-will and informing the public
- IV. Secondary Objectives such as promoting research and testing program appeal
- V. Publicity Objectives such as creating human interest situations and sponsoring a huge or unique prize contest to capture the public's fancy
- VI. Employee Objectives such as training employees, suggesting better working habits, and helping employee relations in general
- VII. Specialized Objectives such as increasing circulation, raising money, and arousing interest in exhibits, fairs, shows, meetings, etc.
- VIII. Miscellaneous Objectives such as building sales in particular markets and giving publicity to activities and personnel within a company

Once it's decided to hold a contest, Successful Prize Contests becomes a valuable guide full of suggestions and sound advice based on experience and extensive research. Helpful chapters include Picking A Theme, Prize Strategy, Promotion Media, Promotion Technique, Rules, Awards, Cooperative and Co-sponsored Contests, Window Display Contests, and Judging.

Numerous illustrations and photographs of actual prize contests tie in with the reading. An elaborate appendix describes many prize contests in their entirety stressing the purpose behind the contest, the method used in carrying out the contest plan, and the results. Arranged in alphabetical order, these contest cases clearly demonstrate the authors' ideas and suggest a great many possibilities for successful contest promotion.

Any organization planning a prize contest for the first time should have a copy of Successful Prize Contests. Even those who are old hands at this sort of promotion will find a wealth of new ideas in this stimulating book.

Product Knowledge and Customer Service Theme of Illinois SMCA Convention

Varied aspects of warm air heating and sheet metal field covered during informative threeday meeting. Business sessions, product exhibit, technical addresses and social events add to widespread delegate interest

THE 38TH ANNUAL convention of the Sheet Metal Contractors Association of Illinois, held at the Elks Club, Springfield, recently was highlighted by many informative business sessions during the three day period. Authoritative speakers covered many of the ramifications of warm air heating and sheet metal work, but all stressed product knowledge, proper installations and service as necessary for competing in the present market. In addition to the business meetings, attending members enjoyed the products dispaly on the registration floor, as well as the many social events of the convention.

President W. R. Shaw called the first formal meeting to order Monday afternoon and introduced R. S. Quinby, general chairman of the conventioin, who extended the hospitality of the state capital to the delegates.

Lou Reining, Elwill-Reining & Co., Chicago, was first introduced. He spoke on canopy design and exhaust principles in commercial kitchen work, mentioning the disastrous fires which have occurred in restaurants and hotel kitchens, necessitating a complete revision of safety standards for these establishments a few years back. These standards are enforced by five agencies and require conformance of the building owners. He pointed out that these codes have, of themselves, created new work for those contractors who go after it. Next the speaker covered the most important points of approved hoods and exhaust systems, and warned against improper selection of the exhaust blower. It is important for the static resistance of the system to be properly determined so that in turn the fan can be equipped with the right motor.

Color film on stainless processing

The delegates next enjoyed a three dimensional color film on stainless steel, shown by Wallace Creber of Chicago Steel Service Co. The film depicted processing of stainless from the electric furnaces through the finishmills. Emphasis was placed on the care necessary in handling and storing stainless by showing the processing of an imaginary order.

After the film, Creber spoke on the fabrication qualities of type 430 stainless. He brought out that the absence of nickel causes this grade to lack the great ductility of 18-8 grades, but that it is completely suitable for many stainless applications. However, he recommended careful consideration of the individual job to determine the proper metal selection.



Lou Reining



Wallace Creber

Stanley P. Odar, Republic Steel Corp., was introduced next and together with Mr. Creber handled a question and answer period.

The convention then adjourned until a buffet dinner and floor show in the evening.

The Tuesday morning meeting opened with a talk on dealer credit problems by William L. Davis of Allied Building Credits, Chicago. Davis spoke on the advantages to the contractor in installment selling handled through an industrial finance company. By this method the contractor can expand his efforts in residential work and still control his discounts receivable. The average home owner does not always have or won't spend the



New officers of Illinois SMCA for 1952. L. to R.: W. R. Shaw, president; Rudolf Guenther, vice president; E. A. Schmidt, secretary; Frank Eynatton, treasurer.

money necessary for adequate repairs or a completely new system. Consequently the contractor must take advantage of credit selling to maintain or increase his business volume.

A. L. Veverka, Follansbee Steel Corp., Pittsburgh, closed the morning session with a discussion of metal in roofing applications. Metal with a bonded coating of tin and lead to the base plate allows great ductility and resistance to tearing. The speaker demonstrated these properties with a sample and went on to cite many uses of the metal.

Servicing gas installations

Tuesday afternoon, George W. Zimbleman presented various problems and cures in servicing gas installations. Since manufactured and natural gases all have different gravity ratings and different rates of flame propagation, the contractor should be fully cognizant of these variations in order to install a fully efficient system. The largest part of contractors' service problems result from burner selection. Zimbleman presented many practical suggestions and corrective adaptations for solving these difficulties on the job. In addition air entry into the home must be controlled, and the speaker stressed the fact that 150 cubic feet of outside air must be brought in for every cubic foot of gas burned.

I. M. Nelson, Boston Machine Works Co., closed the afternoon meeting with an address on oil burner efficiency. A properly shaped combustion chamber made of material that will heat up quickly is of first importance, he said. He cited tests indicating high efficiency of round chambers constructed of insulating brick.

The speaker used slides to illustrate the importance of proper size, type, and location of the nozzle. An additional critical element in securing proper combustion is correct location of draft controls. The control should always be located in the smoke pipe as near the furnace as possible. Regulated properly the draft control retards the flow of hot gases, so the heat can be absorbed into the heating system and not escape up the chimney.

Tuesday evening the delegates enjoyed square dancing at a party held at the Elks Club.

Progress in warm air heating

Wednesday morning's meeting was devoted to a talk by Prof. S. Konzo of the University of Illinois, on current advances in warm air heating. The heating industry has had to keep pace with the trend in modern architecture, utilizing in particular large glass wall areas. This type of structure causes greater heat loss at the outer walls. To offset this loss, perimeter heating was developed some ten years ago. This has since been refined into two distinct systems; radial and radial perimeter systems.

The crawl space method provides a most satisfactory home heating system, if the construction provides a vapor barrier to control excess humidity. Professor Konzo went on to state that the third development — small pipe, high velocity heating systems — will achieve widespread use within the next decade. He warned that this system creates engineering problems in air noise and velocity control, but that they can be overcome by careful planning.

David Ruen, Columbus, Ohio, addressed the afternoon meeting on sales and merchandising of gas heating equipment. He urged personal contact through civic groups as extremely important in sales stimulation. Other points of interest were the value and effectiveness of advertising. Quoting from his experience, the speaker recommended newspapers as a most effective medium for the local contractor, and suggested confinement of advertising to the heating season.

J. D. Wilder, executive secretary, Sheet Metal Contractors National Association, ended the speaking sessions of the convention in discussing contractor and association activities. Mr. Wilder analyzed the controls that govern the sheet metal and warm air industry. The only way to fight the situation is through complete cooperation and organization of local, state and national associations. He gave a resume of projects in which the national association is engaged, then pointed out the necessity for bidding on all jobs where jurisdictional awards have been made.



Al Veverka



I. M. Nelson

The final meeting consisted of committee reports, adoption of resolutions by members present, and election of officers.

	1952 Illinois Office	Prs
W. R. Shaw	Jacksonville	president
R. Guenther	Chicago	vice president
E. A. Schmidt	Springfield	secretary
Frank Eynatten	Peoria	treasurer
	New Directors	

James Reuter Kankakee 3 years
C. R. Hardison Eldorado 3 years
Erwin Eichenberger Peoria 1 year (reelected)

Restaurant Modernization with Stainless Steel

ERNEST E. ZIDECK

Sheet Metal Consulting Engineer

COMMERCIAL STAINLESS STEELS are furnished in three groups, known as austenitic, ferritic, and martensitic steels. The difference between them lies in the respective amounts of chromium, nickel, and other elements in small quantities alloved with iron. The austenitic steels contain not less than 17 per cent chromium and 7 per cent nickel. The ferritic steels have about 16 per cent chromium and a small amount of carbon and other elements. Martensitic steels contain a maximum 15 per cent chromium and may also contain minute additions of other elements. Of the three groups, the austenitic steels have the greatest tensile strength coupled with the greatest ductility, and are the most used in sheet metal shops. These steels are twice as hard as common steel, and have a tendency to crack under dull drills or split if notched by the points of the snips.

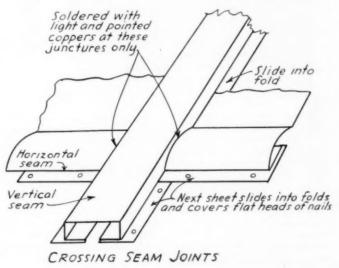
A shop which constructs stainless steel work for kitchens, bars, food stores or restaurants usually obtains its cabinets, containers and similar units from a fabricator specializing in that work. The local shop cannot get ready-made special panels, linings and buildups which differ with each job. Therefore the shop must use flat sheets of the metal, long strips for seam locking, and decorated strips for linings, supplied by a manufacturer. Sheets with mirror finishes, dull satin finishes, and also sheets "tampicoed" with decorative patterns are also available. One firm in the East specializes in

"rigidized" stainless steel sheets, and there are also suppliers of sheets which are cut to convenient sizes for paneling, quilted or fluted for stiffness and deflection of annoying reflexes. Many prefabricated items can be used to advantage, but the local shop is still called upon to do considerable cutting, forming, and fitting for installation.

Since stainless steel jobs constructed locally must be attractive as well as useful, the shop doing this work needs to know the best methods of joining the metal and of fastening it to wall or woodwork. It is also important to know how to do the work the best way with the equipment which is available. Stainless steels sheets comprising seams, locks, and fastenings are constantly being added to as this type of installation grows in number and gains in popularity. Several sheet metal seams, locks, and fastenings are presented in this article, so that the individual shop can choose the ones best adapted to its facilities and purposes.

Overcoming crossing seams

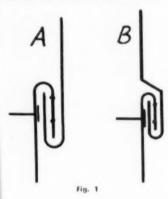
Smaller individual panels create more rigid construction with less metal buckling and reflex. Rigidity of the metal is accomplished by decorative formatures, such as shown in the sketch below entitled "Crossing Seam Joints". Horizontally the sheets are



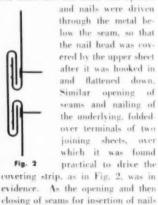
provided with a radial form bead under which is hidden the sheet joint, Vertically the separate panels join below a square form strip which conceals the sheet junctures. Nailing is done through flanges which are covered by the metal as panels are added. Welding is not required. Soldering is done sparingly, in corners only, or where the strips cross each other. Hammering of any kind upon the formed panel or strip should be avoided. Holes for nails or screws should be punched beforehand. Other essentials follow as each usable seam, clock, or fastening is shown.

Joining stainless steel sheets

In Figs. 1-A and 1-B is shown the traditional "flat seam" which has



been used for decades in soldered tin and copper roofing. Ordinarily, cleats were used with these seams, but often also the seam was opened



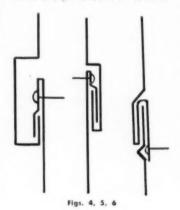
was too cumbersome, a new method

was devised, utilizing holes in the lower fold, as shown in Fig. 3. Nails are inserted through the holes and driven in by using a handpunch of the size of the nail head.



Dust and condensation as well as water or preparations for washing the metal lining will fill the gap between the two metals if the seam on a wall is like Fig. 1-A or Fig. 2. The seam shown in Fig. 1-B will not admit anything between the metals because it is closed on top by the metal being set in, as indicated in the sketch.

In exposed metal work such as stainless steel linings, a joint or seam that requires hammering down or similar closing should be avoided. Besides, the sheet can be kept straight and reinforced by such seams as shown in Figs. 4, 5, and 6. A novel



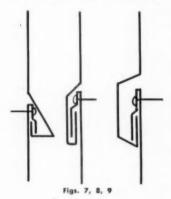
way of fastening metal to the underlying wood or plaster is shown here. The seams proper are hidden from view.

Multi-form bands hide the seam

In Figs. 7, 8 and 9 are shown seams closed on top against condensation etc.; fastened to wall by the novel means; hiding the seam; and reinforcing and beautifying the joined metal by a band of such formation as may be chosen.

Bending over corners eliminated

Any kind of seamed metal, if only flat-seamed sheets as in Fig. 1, cannot be bent or braked over a corner without disfiguring the joint and possibly breaking the outermost layer of metal in the seam. All bending of sheets around corners is eliminated in current practice in this kind of stainless steel work; and special corners are provided into which the



metal, flat or seamed, is received. The metal is notched out for a flat lap that slides into the corner, and the seam itself, the outer form band over it, is made to abut the metal of the corner.

Hidden seam and nail

The combination of seam and bead in Fig. 10 exemplifies the novel method of fastening panel metal to walls. Once the metal is formed to its chosen shape of seam or bead it remains in that shape. In installation, the



panels are slid one into the other without disturbing the formation or hammering other than required in nailing.

Seamed sheets not bent over corners

Fig. 11 shows a formed metal corner which is nailed over a wood or plastered corner. Flat headed nails are used so that the notchedout portion of the sheet can slide into the seam over them. The seam



the Pennsylvania State Museum Building.

This roof replaced one of rustable material. As is so often the case, when architects and builders want a metal with outstanding endurance qualities and low on maintenance, they invariably pick copper. Contractors like copper because it is so readily worked and soldered. And when installed as recommended in Revere's booklet, "Copper and Common Sense," as it was in this case, not only is customer satisfaction assured, but the prestige and reputation of all concerned are protected.

This installation was made prior to the copper shortage.

While copper is not now permitted for roofs, we cite this installation as a means of reminding you of the merits of Revere Copper so that when it once more is permitted for roofing you will again use it. Meantime remember, while limited, you can still get Revere Sheet, Strip and Roll Copper for flashing.

For through-wall applications ask the Revere Dis-tributor about Revere Keystone Thru-Wall Flashing.* He also will advise you of the availability of materials and put you in touch with Revere's Technical Advisory Service in the event you wish to discuss your technical problems.

(Top Inset) A section of the Revere Copper flat deck and batten seam roof. Revere Copper was also used for flashing. A total of some 30,000 lbs. was used on the project. Roofing and sheet metal contractor was LeRoy Roofing Company, Harrisburg, Pa.

(Bottom Inset) Putting one of the 16 oz., 24" x 96" Revere Copper Cold Rolled Sheets in place on the batten seam section of roof. Note that short lengths were used in accordance with best installation practices as recommended in Revere's Booklet, "Copper and Common Sense." The use of short lengths prevents buckling and cracking which would result should sheets be too lang. For the flat seam roofing, 20 oz., 16" x 18" Revere Cold Rolled Copper was used.

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Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.: New Bedford, Mass.; Rome, N. Y.— Sales Offices in Principal Cities, Distributors Everywhere SEE REVERE'S "MEET THE PRESS" ON HBC TELEVISION EVERY SUNDAY



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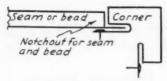


Fig. 1

or bead in the sheets (less the notched-out portion) abuts the metal of the corner and can be soldered to the corner without the metal buckling under the heat application.

Joined sheets upon a wall

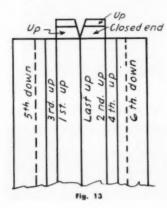
In Fig. 12 is used the beaded seam shown in Fig. 10 to indicate how the formed sheets are held together upon the wall and how the nail or screw that holds the metal to the wall is hidden by the bead. Seams and beads shown in Figs. 4-9 are of that same order.

Special metal corners

Corners in Fig. 11 are made of a slightly wider form than is the respective thickness of a chosen seam or bead. When the notched-out portion of the seam or bead is inserted into the cup formed for it in the Fig. 11 corner, its several thicknesses of metal abut the side of the corner, with this side protruding above the seam proper, as shown.

Layout of the corner

Corners in Fig. 11 are made to fit a particular job. If the seam is shallow, the corner need be not wider than just enough to cover the seam. Such a rather shallow corner is laid out in Fig. 13. This strip of metal



is 234 inch wide and may be 8 or 10 feet long, as the job requires. Its ends are closed by the notched out flange shown, which bends doubly into the corner for soldering.

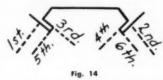
Formation of the corner

Fig. 14 depicts the steps by which the corner may be best formed. Bro-

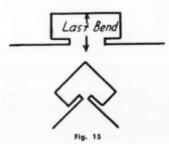
ken lines indicate procession of the bends. There are two 45 deg bends to start with; two 90 deg bends next, and two 180 deg bends forming the seam or Sheets the cups The midjoined dle bend is done last, after the two 45 deg bends have been brought up to 90 deg as shown in Fig. 15.

Practical sheet joint

Fig. 12 While Fig. 15 depicts Corner Fig. 11 as it appears before the last 90 deg bend, it also indicates a practical joint for horizontally seamed or beaded sheets. Its cups receive the notched-out portions

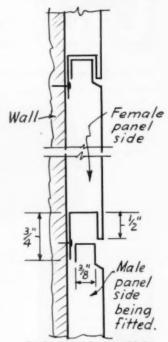


of the seam or bead and the upright sides close over the several thicknesses of metal of the seam proper. In this way the whole wall can be paneled without a single nail or screw showing.



Plain, sturdy wall panels

In the diagram showing the erection scheme for a panel lock to an existing wall, it will be noted that a male panel is being inserted into the female panel ready for nailing to the supporting surface. This type of panel



Erection scheme for a panel lock

lock is chosen for kitchen walls located behind stoves, dishwashing tubs, or any large exposed area where sheets can be joined vertically from the floor to the ceiling and with the least amount of effort on the part of the sheet metal erector. This type of panel lock is preferred in kitchens because it holds the metal straight and even on wood or plastered walls that have deteriorated into uneven surfaces. When finished, the whole appearance of the job indicates that the installation was made by a craftsman with pride in his ability.

Hidden nails hold panels to the wall

The panels are held to the wall by nails that are hidden from sight and crosion. The erection diagram shows how the individual panels are aligned by nailing the upper panel first, then



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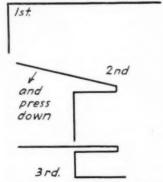
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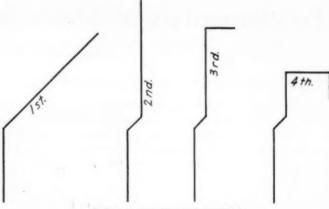
sliding the male end of the panel into the top panel and fastening at the bottom of the second panel. Each panel is placed in sequence and attached to the wall in the same manner.

Whenever uneven walls are encountered, it is advisable to nail the panels only at the points where the metal and the walls touch, otherwise the panel will follow the contour of the wall and the installation will lose its appearance of good workmanship.

It is advisable always to use flat head nails because they do not present obstructions to the male insertions at the time of installation.



Braking sequence for a female p



Each piece of metal used is 18 in. wide, but when the panel locks have been completed, the overall surface coverage is 15 in. The 3 in. are used in the lock formation and can be calculated from the dimensions given in the diagram showing the erection scheme for a panel lock.

The diagrams of the braking sequence for a female panel lock explain the steps to be used. First break the sheet 11/8 in. from the end to a 90 deg angle; second, turn the metal and break 1/2 in., and press down for a 180 deg angle. The third step is to break the short piece 3/4 in.

to a 90 deg angle.

The male fitting for the panel lock is shown in the diagram for braking sequence for a male panel. Here the first break occurs 1,5 in. from the end as in the first step and is broken to a 135 deg angle. The second step is a 16 in. bend in which the metal is returned to its perpendicular shape by bending at a 45 deg angle. The third step is a straight 90 deg bend, 3/8 in. from the end. The fourth step is a bend at 45 deg but 3/8 in. from the third step break.

The panel is now complete and ready to be placed.

SMCNA Annual Convention Report

(From page 40)

d) Consider special coverages that aren't commonly carried as they have unusual advantages and are comparatively cheap. One of these is business interruption insurance, another is employee fidelity insurance

e) Remember that insurance is a privilege and should not be abused.

In President Brown's report to the association he stated that the 10 per cent gain in membership during the past year was a good showing toward the ultimate goal of 3,500 active members he believed possible to include in the national association. He further stated that an association of this size would have the strength to promote the welfare of the sheet metal industry and to represent it adequately in government circles.

J. D. Wilder reported the efforts of the executive secretary's office to promote the affiliation of the national association with the state and local associations. This office is using a mailing plan of booklets and letters supported with talks given by key men in sections where the national association is not now active. He recommended that national association members use every opportunity

to tell non-members about the benefits of belonging to the national association.

Entertainment

The Ladies Program Committee planned a schedule that kept the visiting ladies busy every minute of their stay in Rochester. Besides seeing the lovely lilac display at Highland Park, they enjoyed lunch and the ballet at the Rochester Club and a tour of the George Eastman House. Those enjoying the hobby of photography found it almost impossible to leave this wonderful display of old time movies and cameras.

Public appreciation for the fine work done by the Ladies Program Committee was voiced by President Brown at the Annual Banquet on Tuesday evening. The Rochester Ladies Committee was headed by Mrs. Wm. J. Schmitt.

Over 400 members and their guests attended the Annual Banquet. Each lady present was given the choice of snapdragons, orchids or gardenias for her corsage. After-dinner entertainment consisted of two singers, a magician and two energetic impersonators. Dancing followed the floor show.

Fundamentals of Sheet Metal Practice

CHARLES SEEL

Sheet Metal Shop Foreman

Soldering, one of the basic operations in the sheet metal industry, is explained in detail. Such steps as heating, filing, tinning, and cleaning the soldering tool, choice of solders and fluxes, methods of soldering various types of seams, and other pertinent data are discussed.

Soldering is the process of joining or fusing two pieces of metal by means of another metal which has a lower melting point than the metals to be joined.

The heat required to bring the metals to be joined to the proper temperature is applied by using a tool known as a soldering copper, which is the technical name for a piece of forged copper attached to an iron shaft, and fitted with a wooden or fiber handle. The term "soldering iron" is, however, almost universally used by most mechanics.

Heating the soldering copper

The secret of successful soldering is to make sure that the metals to be joined, as well as the solder itself, are at the correct fusing point. The ability to determine this point can be acquired only with practice. Too much heat will cause the tin in the solder to burn away, and too little heat will cause a poor joint.

There are several methods of heating a soldering copper to the proper temperature. These include: charcoal fire pot; gasoline fire pot or torch; carbide tank; electric soldering copper; or a gas furnace. The latter, burning city gas, are usually used in the shop, and charcoal fire pots or carbide tanks for outside work.

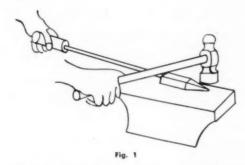
Copper is used for soldering not because it retains heat, but because it absorbs heat quickly and gives it off quickly, i.e., it is a good conductor of heat. Copper also tins readily and can be forged into different shapes without injury. Soldering coppers are supplied in various types and weights. They are designated by the weight of a pair. Thus, a 3 lb copper is one of a pair, and weighs 1½ lb. The commonest sizes are 1½, 2, 3, 4, 5, and 6 lb per pair.

The square or pyramid pointed copper is generally used for inside work, where four sides are tinned. The bottom copper is used mostly for what the name implies, to solder the bottoms in cans, pails, etc. The roofing copper is used on heavy metals or for tin or copper roofing seams. The hatchet copper with a swivel handle

is used for larger or heavier work. Any soldering copper may be forged to suit special conditions which may arise. For outside work, the bottom copper is customarily used and tinned on one side only.

Shaping according to tool's use

A soldering copper should always be forged to the proper shape for the purpose for which it is to be used. The time required to forge it properly will not be lost when a good, watertight or fume tight seam is desired. Place the coppers (generally a pair) in the gas furnace and heat to a cherry red. With a file, scrape off the burnt tinning and any scale which may be on the point, then place on the anvil or suitable stake, at an angle of about 20 deg. Use a heavy ball peen hammer and forge by striking each side about four blows, one side at a time, Fig. 1. Each blow is struck toward the point from the previous one. Should the copper have too fine a point it must be hammered back before the forging is commenced.



To obtain a bottom shaped copper two opposite sides are hammered more heavily than the other two faces. After the proper shape is obtained the faces are smoothed off with light blows so that there will be a minimum of filing required.

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Mrs. C. Y. Woodbury, Sales Manager of C. Y. Woodbury, Inc., Quincy, Mass., talking to Honeywell Representative Gaze Masterman

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It may be necessary to reheat the copper once or twice during the forging. After forging, the copper is filed smooth on one or more faces, according to its purpose. It is not necessary to file a copper while hot. Copper is annealed by heating to a red heat, and may be cooled by immersing in water or allowing it to cool in the air.

To file, place the copper itself in the vise with the point slightly elevated and smooth each side with a sharp file, working at an angle of 15 deg in long steady strokes, Fig. 2. Avoid rocking the file as this will cause



a rounded side. The filing should extend for about 1 to 1½ in. from the point, according to the size of the copper. There should be no black spots showing. The point is then filed until it shows a bright red color and the burrs are then removed.

Fig. 2

The coppers are placed in the gas furnace after being filed and heated to the proper temperature and made ready for tinning.

Tinning the soldering tool

There are two ways in which to tin a soldering copper, one for use on galvanized steel, copper, etc., and the other for soldering tinware. For galvanized steel a block of sal ammoniac is used and for tin a brick and rosin. Sal ammoniac, known technically as muriate of ammonia, is the residue left in the refining of table salt. Rosin is the residue left after the volatile elements are driven off turpentine. The ammonia and turpentine odors are easily detected when sal ammoniac and rosin are heated and should not be inhaled.

Sal ammoniac may be obtained in a refined state in crystal form or in 1 lb compressed bricks. In either



case it should be kept in an enclosed container to prevent it from breaking up or deteriorating. It should be kept away from tools since it has a tendency to cause rust.

Rosin comes in both lump and powdered form.

The heated copper is rubbed on the sal ammoniac or the brick and each side is cleaned and tinned by using a small amount of solder, Fig. 3. Old-time mechanics used to tell if a copper was hot enough by holding it near the cheek. A safer test is to observe whether the copper melts the sal ammoniac without pressure. If it does this, it is hot enough. If it causes excessive smoke it is too hot.

Solders

The solder known as 50-50, or half and half, is more widely used by sheet metal workers than any other. Being composed of 50 per cent tin and 50 per cent lead it has excellent binding qualities and has a melting point of approximately 415 deg.

It is a strange fact that while tin melts at 456 deg and lead at 621 deg, solder will melt at a lower temperature than either of its component metals.

The 11/2 lb bar of solder is widely used and convenient to handle. Solder is also marketed in wire form, on spools and also with an acid and rosin core or center.

Kitchen and dairy equipment are soldered with block or pure tin which has a brighter color than solder. Solder is not used for this application because of the lead it contains.

Fluxes

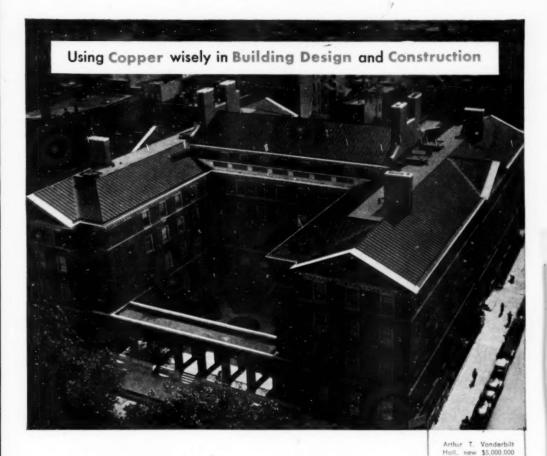
To guarantee a strong joint it is necessary to use a flux. Metal is generally covered with a thin film of oxide which interferes with soldering. This oxide increases as the metal is heated. So, in order to remove the oxide and protect the metal and solder and permit them to fuse properly, a material known as flux is used.

Fluxes used for soft soldering consist of solutions, pastes, or salts, according to the type of metal.

Commercial muriatic (hydrochloric) acid, sometimes called raw acid, is commonly used on galvanized steel. When chemically pure, it is colorless. The commercial grade is much cheaper, and yellow in color. This acid is also used for cleaning purposes on black iron and copper. Some men, when soldering, dilute the raw acid with water, weaken it by placing a piece of zinc in it, or put a drop or two of turpentine in to kill the fumes. It should always be kept in a glass bottle and covered.

The flux called zinc chloride is used for soldering copper, brass, and black iron. This is sometimes called weak acid or boiled acid. It is actually not an acid, however, but a salt. It is made by placing zinc in muriatic acid, creating a chemical reaction whereby the hydrogen in the acid is released and passes off into the air. The liquid will boil and become hot, so care should be taken when this flux is prepared.

A quart size earthenware pot is suitable for preparing zinc chloride. A small quantity at a time is made, the



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This handsome shelter for legal learning, at New York University, will meet the double test of time and minimum maintenance cost.

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The roof of Vanderbilt Hall_has an 8" pitch and is constructed of poured concrete. The roof covering is copper of batten seam design. The copper pans were formed from 20-oz, weight sheets and the batten covers, ridges and gravel stops for the flat roof areas are all of 16-oz, copper. The built-in gutters are lined with 20-oz, cornice temper copper with expansion joints between downspouts.

When roofing must last, ANACONDA Sheet Copper costs less. Good design and proper application insure its enduring service. The use of copper in building construction is currently under regulations and restrictions issued by the National Production Authority, but there are no restrictions against planning for the future. We will be glad to help you in solving sheet metal problems. Don't hesitate to write The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

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acid placed in the jar and the zinc added. When the boiling begins, the escaping gas is set afire and the pot is let to stand until all bubbling stops and the material cools off. It is then poured through a cloth or strainer, and stored in a glass container.

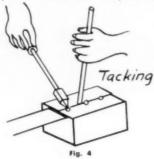
Rosin is used as a flux for tin and lead soldering.

The flux should be applied with an acid swab or brush. This brush should be held like a pencil and applied in one direction only. While soldering, the flux should be kept in a glass container or cup, never more than 1/2 in, deep, because of the danger of spilling.

To clean coppers while soldering, a dip solution is used and is made in one of several ways. The solution may consist of water and weak acid; water and sal ammoniac; water, raw acid and weak acid; or water and a combination of all of the above. The soldering copper is dipped quickly into the pot to clean the point, the dirt falling to the bottom. When the water has been reduced, more must be added. The copper may also be cleaned by rubbing it lightly on the sal ammoniac or on a damp cloth. A hot copper should never be dipped into the soldering flux.

Soldering flat seams

When soldering flat seams the work should be placed in a level position or as near level as possible, Fig. 4. If



it is a lap seam, it must be held in place by tacking. No tacking is required on a grooved or riveted seam. The acid or flux should be applied sparingly, with one or two continuous strokes. It should never be applied in a back and forth method. A good practice is to shake the brush out to remove the surplus flux and then apply it.

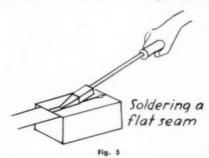
To solder a lap seam, the mechanic dips a hot soldering copper into the pot, holds the seam together by pressing down with the bar of solder, melts a small portion from the side of the bar, and tacks the seam at intervals of 2 to 4 in, along its entire length, Fig. 5. After this is completed, he places the hot copper on the seam to preheat it. Applying a small amount of solder, he draws the copper back and forth between the tacks. It is important to work slowly back and forth, adding solder as needed and keeping the flat head of the copper flat on the seam. The copper should not be removed from the seam until finished unless it cools off too much.

Successful soldering cannot be done in a continuous motion in one direction. There must be a back and forth motion to heat the metal and cause the solder to flow evenly. When a seam is skim soldered, the copper is held on the edge of the seam; when sweat soldered, it is held on top of the seam and at a slight angle.

The soldering method described will also apply to a riveted or grooved seam, without the tacking process. Where a seam is tacked, the solder must be allowed to cool before soldering from one tack to the next.

The soldering copper should always be held in a flexible manner, never with a tight grip. Beginners have a tendency to hold the copper like an automobile steering wheel. It should not take long to overcome this condition.

A riveted seam is soldered as already described. If



the rivets are to be soldered, a circular motion is used around each rivet.

A formed elbow, tee, or other fitting is soldered with the same procedure, soldering a little at a time and keeping that portion being worked as level as possible, to keep the solder from running away. Always allow the solder to cool before moving along. As it cools, it will show a dull, gray color. When the soldered seam is complete and while warm, it should be cleaned with a damp piece of waste or cloth.

Bottom soldering

There are two good ways to solder the bottom in a round or similarly shaped product. One is by using wire solder cut to size and fitted to the bottom; the

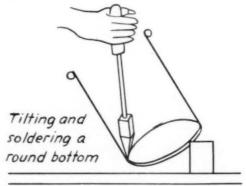


Fig. 6

Atsong!

No. 55 - available in flywheel and geared types

Mention Punch Presses and the first question is, "How about the Clutch?"

That is why Wysong insisted on more than mechanical efficiency in the square pin type clutch. They insisted on something to reduce costly repairs and expensive down time . . . something to eliminate excessive wear and too

frequent scoring of crank shafts and clutch dogs.

This was accomplished with easily replaceable, hardened and ground steel wear plates (Patent applied for). The steel clutch dog is also hardened and ground for perfect fit, reducing wear to a minumum. When prolonged use does produce wear, wear plates can be replaced at moderate cost with negligible loss of time.

An improved safety feature is also provided by spring loading the clutch finger to insure complete disengagement (Patent applied for). When set for single stroke operation a second stroke cannot be made until the foot pedal is completely released and again depressed.

Compare these and other features of Wysong Presses with any others you have considered best in punch press design and construction. Feature for feature and dollar for dollar you get more when you 'Buy Wysong'.

CLUTCH DETAIL

Note roller and cam which force disengagement through clutch pawl. Clutch finger returns to starting position through spring and toggle leverage. Wysong builds Squaring Shears, OBI Presses, Slip Roll Formers, and Rotary Combination Machines. See your dealer or write to the factory for full information, Wysong and Miles Company, Greensboro, N. C.



other by using solder pellets or beads which have been melted from the solder bar and allowed to become cold. If wire solder is used it should be tacked in several places around the perimeter.

The work should be tilted at an angle of about 45 deg and a short section soldered and allowed to cool, as in Fig. 6. After cooling another section can be completed. If the product is round or flat oval it should be turned as the soldering progresses. The speed of turning will govern the thickness of the soldered seam. On a square or rectangular project one side should be done at a time.

Upright seams

In soldering upright seams there are two classes of seams to consider: the lapped seam, riveted or not; and the locked seam. These seams may be either in a flat section or on a corner. The lapped seam must be tacked as previously noted.

If copper is to be soldered, it should first be tinned so that the adjacent edges will be tin against tin. If a locked seam, corner lap or corner double seam is of copper, it should be left open, the two edges tinned and then malleted smooth and soldered.

Employee Solicitations Can Be Eliminated

THE AVERAGE factory and office worker becomes thoroughly disgusted with the problem of collections which seem to be endlessly solicited among his fellow employees — collections for birthdays, wedding presents, those on the sick list and countless others. When an employee refuses to contribute, he is regarded as stingy and the resultant ill-feeling tends toward lower employee morale. This is reflected in poorer production records.

Management likewise regards these collections coldly, since they serve to disrupt production, interfere with assembly line routine and in general raise have throughout entire departments. Some companies have prohibited all solicitations, but they still persist even when an arbitrary ruling has been made.

One firm has solved this problem to the complete satisfaction of its employees, without cost to itself. The company arranged with a local vending machine firm to install gum, candy and soft drink dispensers in the plant. The vender furnishes the units, as well as servicing and re-stocking them.

Ordinarily the vending machine firm pays the company where its dispensers are installed a fee based on a percentage of the sales made through the machines. The above-mentioned firm has eliminated the employee collection problem entirely by having the vender turn the company's percentage over to a permanent fund which teplaces the former solicitations.

The fund is administered and disbursed by a committee appointed by the employees at the beginning of each year. During five years of the plan's use, a surplus has always remained in the fund at the end of the year, and during that period, not a single employee collection has been taken up. The firm's employees are pleased with the plan and management has found that it has eliminated considerable lost time by doing away with the constant interruptions caused by solicitations.

The vending machine company has a member of the employee committee with its operators at the time the machines are checked; the resultant percentage is then paid directly to the committee member who turns it over to the company cashier. He in turn desposits it at the local bank to the fund credit, and checks are written against it on the signature of two of the three employee

committee members. The company in no way handles the money except to make the deposits, as a convenience to its employees.

By this plan, money is spent from the fund only to provide gifts for special occasions, flowers for hospitalized employees or for a funeral. Limiting the plan's use by agreement at its inception has prevented possible abuses as the fund accumulates.

It was noted that after the plan was put into effect, fewer employees had a tendency to slip away from the shop for coffee or a candy bar. The shop management was pleased because unproductive labor time has been reduced to a minimum.

New Homes Air Conditioned in Connecticut

A SMART NEW residential development of 52 houses in Stamford, Conn., is stated to be the first fully air conditioned residential area in the country with every home having a year-round temperature and humidity suited to each homeowner's taste.

According to Gary Wellington, the designer and builder of the new project. "For health and comfort there's nothing to equal real air conditioning, and our experience shows that it's a good deal cheaper to own and operate than one thinks." Air conditioning in these homes removes practically all dust, dirt, pollen, and other foreign matter from the air, cools the air to the desired temperature in the summer, and removes all traces of mugginess by dehumidification before the air reaches indoor areas. Wellington stated.

From the builder-designer's viewpoint, air conditioning allows greater freedom in housing design, plus a better, more practical use of building space, and vast savings in building material and labor required for construction. "The problem of cross ventilation, expensive yet useless space created by wings, angles, and juttings no longer exists when year-round air conditioning is included in a new home." Wellington explained.

A salient feature of the new Stamford residential development is the fact that costs for operating an air conditioning system such as are installed in the new Stamford development are expected to average less than \$20,00 per month.



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here it is ... the floor register everyone wants!

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PERIMETER FLOOR REGISTER

with Standard's exclusive

Dialamatic Control

Standard's new, exclusive dialamatic control gives you POSITIVE HEAT CONTROL. The set screw arrangement means easy balancing, trouble-free operation!

SPECIFICATIONS

The blades of model PH-142 are fabricated of 16 gauge steel, the blades are set in a fixed-fan angle degree for even deflection. The Frame is of one piece, 18 gauge steel construction. The Louvre box fabricated of 16 gauge steel. Packed one to a box, and 20 to a master carton. Comes handsomely finished in gleaming, durable metallic-lustre finish,



Duct opening	Overall of Louvre Box	Overall of Face	Open Area	Depth of Box
214" x 14"	21a" x 131a"	3½" x 15¾"	80%	216"

THE NEW, IMPROVED multiple valve

REGISTER

Has Horizontal Multiple Valve Louvres, and $\frac{3}{16}''$ turned down edge for flush sidewall installation. The attached sponge rubber gaskets are an extra feature that prevents escape of air and chipping of wall surface. The Louvres are adjustable so that the flow of air may be directed either downward, straight forward, upward, or to complete shut-off.



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NASMD Spring Meeting

PRESIDENT Alexander Thomson, of Tanner & Co., Indianapolis, Ind. called the forty-second Spring Meeting of the National Association of Sheet Metal Distributors to order at Hotel William Penn, Pittsburgh, May 8. Executive Secretary Thomas A. Fernley, Jr. reported on the tremendous bureaucracy that had been built up in Washington to control all segments of the economy, and of the resolution passed by the Executive Committee advocating that Congress abolish NPA. OPS, and the Wage and Salary Stabilization Board. The resolution was sent to all members of Congress and the Senate. He also told of the various aids to wholesaling that his office had mailed out.

Howard Williams, vice president, Continental Steel Corp., Kokomo, Ind., gave a comprehensive report on the galvanized sheet situation, which did much to dispel the gloom about this mill product. He told how the demand for sheet steel has eased off for the first time in ten years. Mr. Williams' figures on flat rolled products were very enlightening. In 1940 the production of flat rolled was 13 million tons, while in 1951 it had climbed to 24 million tons; hot rolled annealed has an increase in capacity of 28 per cent, cold rolled an increase of 275 per cent, hot rolled strip an increase of 50 per cent, while galvanized sheets showed a small increase in the period 1940-1951. In 1940 galvanized sheets accounted for 13 per cent of all the flat rolled products, but the rate of increase of capacity was only 16 per cent, the smallest increase in any flat rolled classification. To put it another way, if the galvanized tonnage had been kept at the same ratio as in 1940, 13 per cent of flat rolled capacity up through 1951, there would have been 3 million tons available, instead of less than 2 million. This apparent decrease was caused by government controls on the use of zinc, coupled with the activities of OPA and OPS.

Most producers of galvanized sheets must seek markets where the freight absorption is the least and for that reason some regions might still be suffering for lack of galvanized metal. They are, of course, the victims of economics and the new basing point system. Mr. Williams seemed to think that generally speaking sheet wholesalers were in a much better position on galvanized sheets than they had been for some time past.

Business management

Management has led in the production of many things at lower costs to raise the standard of living, according to Dr. Lanfear, dean, School of Business Administration. University of Pittsburgh. Doctor Lanfear stated the study of human relations is the most important subject of these times. He pointed out that in the good old days, which some people like to talk about, it was easier to live together in a good society, even with a lower standard of living, but that two world wars had changed that point of view. Human nature is the most fascinating study of this age because it is human nature that has caused and will cause revolutions. The saving of democracy and the free enterprise system will come only through an improvement in human relations. Dr. Lanfear told of the refresher courses that the University had set up for business executives to get them closer to the problem of human relations and what courses of this type could do for executives in meeting their own problems in the shop, office or plant. Dr. Lanfear made the point that industry has to get answers for foremen and other supervisory personnel, answers that have to be factual instead of opinions in order to combat at shop level all of the adverse propaganda that has been given out as opinions rather than facts. The workers will evaluate facts from management if properly presented and in this manner bare the propaganda machines of those who would try to tear the worker from our present system.

Business for profit

Business for Profit was the theme of A. W. Robertson, chairman, finance committee, Westinghouse Electric Corporation. Pittsburgh. Mr. Robertson pointed out that the United States reached its greatest period of development in an era when business for profit was the incentive. Today, when some politicians are trying to make profit evil, it still is the reason corporations are expanding. Business for profit will continue to be the motivating force behind all activity of the population. In the early times of the United States, an agrarian society produced for the individual but the principles of business for profit were recognized by the founding fathers who outlined



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Has the selling features that help you build more sales volume!

Rotopower Oil Burner is dependable and fuel thrifty. The Rotopower Unit combines the Rigidframe motor, fan, pump, oil conditioner and Thin-Mix fuel control—all in a single, compact, sealed unit which can be removed and replaced in a matter of minutes. This makes inspection and adjustment an easy matter.

OPC Conditionairs — a value priced, feature packed line of forced air furnaces with pressure atomizing oil burners. Blower-filter unit may be mounted at bottom of unit for vertical installation in utility rooms, alcoves, or closets; or at the back—for basement installations. A Reverse Flow model for "perimeter" and "radial" heating and a deluxe model with matching blower and furnace units are also available.

Gas Conversion Burner is of the up-shot, single-port type, and employs a special Stainless Steel Flame Spreader which directs the flame to all sides of the combustion chamber. Delco-Heat gas burner is adjustable to almost any furnace or boiler and is AGA Certified for natural, mixed and manufactured gases.





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Take the Delco-Heat Gas-fired Conditionair, for example. It has the exclusive Multi-Rad heat exchanger which provides the most efficient, economical operation possible and assures years of trouble-free service. And the exclusive double ribbon type burner produces a quiet, clean and efficient flame.

Delco-Heat's built-in draft diverter eliminates unsightly external attachments—adds to the streamlined appearance of the handsome heavy-duty furniture steel cabinet. Controls are easily accessible for adjustment and are located inside the Conditionair jacket for protection. Blower and exclusive Delco Appliance Rigidframe Motor are rubber mounted for quieter operation.

Every Delco-Heat unit is competitively priced to give you a further selling advantage. What's more, Delco-Heat makes a complete line of gas or oil-fired heating equipment to fit all your new home and modernization needs. So, get the facts about a Delco-Heat franchise today. Send coupon below for complete information.

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the thought that the less government people had the better. Up until now there has always been a respect for property rights and Lincoln died because he defended the theory of property rights. The founders of some of the greatest businesses in the United States were men of vision, poor but striving for the rewards that success could give them for their struggles, Westinghouse, Edison, Ford and Firestone being outstanding examples. All these poor men founded businesses for rewards they expected to come from their pioneering of an idea. Today such men could not succeed because of the interference of government and its taxing power.

The founder of Talon Fasteners is another outstanding example of the pioneering that went on when property rights were well regarded in the United States. He worked to build his business in spite of the ridicule heaped on his head and worked with but one idea in mind, profit.

Mr. Robertson contended that income taxes were really taxes on ability rather than on property because they could stifle incentive and initiative. Business for Profit was an honorable system in spite of politicians who coined words that had a hissing sound to describe the owners of business. When business for profit does not exist then the government will be the loser because of the taxes lost.

Carl H. Bickell, supervisor built-up roofing, Barrett Div., Allied Chemical & Dye Corp., gave a number of hints as to how wholesalers can help the sheet metal contractors get more business by helping with the merchandising job required at all levels.

Basic metal supplies

The Outlook for Aluminum was the title of a talk by Jack Quinn, Architectural Div., Reynolds Metals Co., Louisville, Ky. He brought out the increase in per capita consumption of aluminum went from 3 lb per capita in 1939 to 12 lb per capita in 1946. In 1951 the production facilities were double those of 1946. and in 1952 the primary production will be 2 billion, 850 million pounds. These are production figures, not sales figures. Mr. Quinn believed that this increased production can be sold because in 1939 aluminum was not considered a basic metal but today it is. Its use in many applications has widened since 1946 and in some applications it can be used in place of other basic metals. Known deposits of bauxite assure continued production of aluminum to meet the needs of the present consumer, with sufficient to serve new markets for more products. Laboratory technicians are working on many experiments to improve aluminum's flexibility.

The industry has learned that its source of power does not have to be hydro-electric plants. Today 70 per cent of the energy needed to reduce bauxite to alumina is found in natural gas or coal. Water power has been a source of real trouble to producers because it is not in constant supply. Mr. Quinn is sure that atomic energy can be a source of power in the reduction process when it is available to private industry. Since 1930 aluminum production has increased five times, while steel has

doubled. The price of aluminum today is below the 1939 base price.

Copper still in short supply

E. B. Tracy, sales manager, American Brass Co., Waterbury, Conn., discussed in detail *The Copper Situation* and pointed out that government stock piling had shortened the commercial supply which is further hampered by government order M-12. This order prohibits many specific uses for the metal. From 1935 to 1939 the average production was 642,000 tons, while in 1950 it had increased to 964,000 tons. If prevailing estimates of the present stock pile are correct there is only enough to make us self-sufficient for twelve months and this condition poses a real military problem. We are importing copper at the rate of 35,000 tons per month but that has not helped to relieve the shortage. In the last 18 months production of primary copper in the United States has increased by 25 per cent.

During World War II, all copper countries sold us copper, but today African and Chilean copper is going to Europe because they pay above the U. S. market price. In an open market where U. S. ceilings are below the world market price, such foreign copper will obviously go where it will get the highest price. Canadian copper is being sold by permission of the British government. All market studies made indicate the copper market is broken down as follows: Electrical industry, 53 per cent; building industry, 11 per cent; automotive, 18 per cent, with the balance going to all others. The government demands for 1953 will use for the military and atomic energy commission a total one fifth of all steel, one third of all copper, and two fifths of all aluminum produced. Even with continued stock piling, it will mean that one third of all raw copper we use must be imported There have been many ill considered statements coming out of Washington about the uses of substitutes for copper and such statements serve no useful purpose. Mr. Tracy was of the opinion that with the present product shortage of copper, a consumer is in a far better position to decide on the substitutes for copper than some government bureau. 1953, 1954, and 1955 will show the copper situation getting progressively better due to new production facilities.

Steel looking for new iron ore sources

E. L. Shaner, editor in chief of 'Steel, told the meeting that the steel industry's problem was one of getting new sources of iron ore. This in turn meant a need for more transportation facilities to get the water borne ore to the mills. The theoretical capacity in 1952 will be 117,000,000 tons. Such tonnage will produce selling problems with which the steel companies have not been familiar since 1940. It is expected that the expanding uses for steel will help them solve these problems. Mr. Shaner told of the increasing number of two car families in the U. S.; also of the population increase in the period 1940-1950, which was double the percentage of increase between 1930-1940. Also there was an increase in size of the family unit in the decade between 1940-1950. Mr.

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- * EXCLUSIVE Adjustable Heater
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- * EXCLUSIVE two-wire Twin Contacts
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Built-in Adjustable Heater is a **PERFEX** Exclusive

The "Magic Dial" Thermostat can be set, by simply turning a screw, to the required setting for almost any primary control. It's as easy as that — only one model to stock — and no assortment of heaters to worry about.

This is just another one of the many advanced, exclusive features found in the Perfex "Magic Dial" Thermostat which has made it foremost in the industry.





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Shaner thought the steel companies could lick their sales problems by aiding the automotive, home appliance, and building industries to develop a good sales program and tie it in with their own production schedules.

E. K. Thompson, secretary, Thompson & Co., Oakmont, Pa., chose for his subject Corrosion and Conservation, a paper packed with vital information about how the wholesaler can help his customers make metal roofs, gutters and down spouts last longer and be more beautiful. He spoke at length about studies made in eastern markets, showing that the application of paint to a metal roof increases its longevity and usefulness to a point of real profit for both the wholesaler and sheet metal contractor. Mr. Thompson had case studies to prove all his points.

Discussion of retirement problems

160

Retirement Problems and Trends Today was discussed by Norman McCready of McCready Pension Engineers, Indianapolis.

Retirement plans have passed the experimental stage and proved so valuable that many corporations have adopted them as a cornerstone for the building of good employee relations, and future financial security.

Since the problems vary in different corporations, each plan should be tailor-made to fit the existing circumstances; but there are five fundamental factors which are essential to the successful operation of any retirement plan.

The plan must be actuarially sound, must be practical, flexible, attractive and profitable.

Although these five fundamental factors are essential to the success of any retirement plan, there is wide variation in the method of establishing and operating a retirement plan and in the selection of benefit features to be included. These can best be determined by the particular circumstances of the employer.

Heretofore most retirement plans with adequate benefits have required that a sum of money equal to the accrued liability be paid in immediately upon installation of the program. In many instances the initial cost has been almost prohibitive. The use of a properly designed retirement plan assures a reasonable installation cost as well as a relatively low annual cost in years to come.

Contributions may be made jointly by the employer and employee, or solely by the employer. Credit from mortality and turnover prior to retirement will materially reduce the employer's contributions.

Retirement plans are exempt from federal taxes, if they meet the qualifications set out under Section 165a of the Internal Revenue Code.

Since a proper retirement plan is designed to operate for a long period of years, it is essential that it be adaptable to changing conditions, and yet these alterations must not disturb the equity of the interested parties. This plan provides for increasing or decreasing retirement amounts, adding desirable features, or modification.

The Internal Revenue Department Rules and Regulations permit the inclusion of some or all of your employees. In other words, you may limit it to special groups, such as executives, certain departments or persons of special age, salary, or service qualifications. The plan may be optional for all employees within these groups, and they may be eligible immediately or after a preliminary waiting period.

The employer may, if he wishes, supplement the Social Security old age benefit in determining the monthly retirement amount. It is frequently advisable to establish a ratio between service years and retirement amounts. A like amount may be provided for everyone—or a graduated schedule with a fixed minimum and maximum. At retirement an employee may elect to receive either his regular retirement amount or adjusted payments (according to actuarial tables) and thus provide benefits as long as he or his wife lives.

In a contributory plan an employee shall be entitled to a refund of his own contributions with interest if he severs his connection prior to retirement. In such event, the employer's contributions may be credited to the company or vested in the employee to provide retirement at a later date, age 65, or earlier.

No two companies are exactly alike; they differ in size, geographical location, history, financial resources, market conditions, wage scales, and both public and personnel relations. A plan that would work to perfection for XYZ company might not be at all adequate for another firm's circumstances. If an employer wishes to provide a satisfactory solution it is essential for him to adopt a plan that has been especially designed to meet the particular problems with which he is confronted. Furthermore, it is very important to engage the services of experienced and competent pension engineers to survey the problem, make recommendations and render technical assistance especially in the designing of a retirement plan.

Increasing the value of sales calls

John Robertson of Robertson Heating & Supply Co., Alliance. Ohio, gave a presentation on How Does Your Garden Grow which explained how the wholesaler could use material furnished by various manufacturing sources of supply to make more contacts with contractors and dealers and to help the salesman close the sale when he makes his call. Mr. Robertson had documented his case very well and has figures plus other exhibits to show that the salesmen must have more support in his territory if the garden is to grow. In a survey which Mr. Robertson made in one of the territories covered by his salesmen, he discovered that each contractor dealer had twenty-two salesmen calling on him from wholesalers and that anything which the wholesaler could do from the home office to help his salesmen overcome that competitive group would be well worthwhile. Direct mailings of house organs, manufacturers' bulletins, and a price service for the contractor dealer in which the Robertson salesman kept the customer's catalog and price book up to date were all evidences that the Robertson organization is trying to help its customers in some parts of his business where such help is needed the most.

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FAST, EASY INSTALLATION

Sturdy, die-formed couplers slip together readily without forcing. No cement, mastic or banding material needed. Adjustable lengths and elbows eliminate costly cutting and fitting; speed installation.

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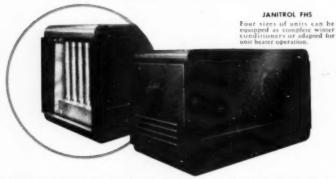
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Perfect accessibility and adaptability for any type installation



4 COMPACT PACKAGES MEET 80% OF ALL HEATING REQUIREMENTS

Here is the most adaptable and different gas heating unit . . . clean, simple, compact design that establishes a new standard in flexibility and economy . . . saves useful floor space. The new Janitrol FHS gives you more installation sales features than ever believed possible. With these complete gas heating packages you can also make more economical installations whether for perimeter heating, conventional type layouts or the Janitrol Save-Way System utilizing constant air circulation with 4" duct.

A typical 90,000 Btu. gas-fired conditioner measures 25" x 27 1/4" x 65", requires 434 Sq. Ft. of floor space, while the Janitrol FHS is less than 24" high, 22" wide, 40" long, and requires no floor space. Units can be vented either side, burner and pilot adjusted from either side the control train and gas connections, fan, limit control and electrical connections can all be located on right or left-hand side.

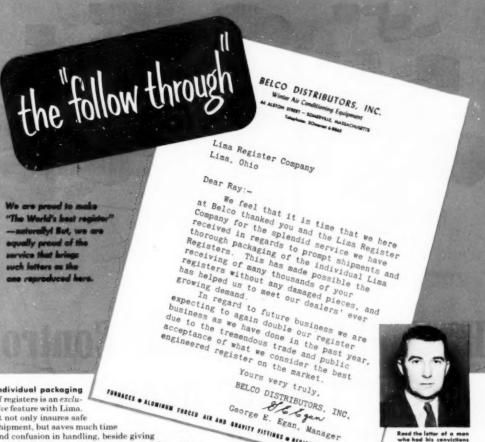
Think of what this all means to you in terms of accessibility for adjustments and inspection. Think again, how these units will simplify your stocking and servicing.

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LIMA WALL REGISTER—Most beautiful, efficient, durable wall register ever made? Allows one man to balance a beating system—so simple the borneowner can make individual adjustments himself. Eliminates need for quadrant dampers! Adjustable diffusion pattern. Attractive... harmonizing Lima metallic bronze finish.



UMA FLOOR REGISTER—Strongest, most beautiful floor register ever made. So strong you can drive a truck over it, resistance-welded into one piece of steel. Easy to oper-ate and keep clean! Grid bars spaced to avoid catching high heels or furniture legs. Finished in Lima Duragold.

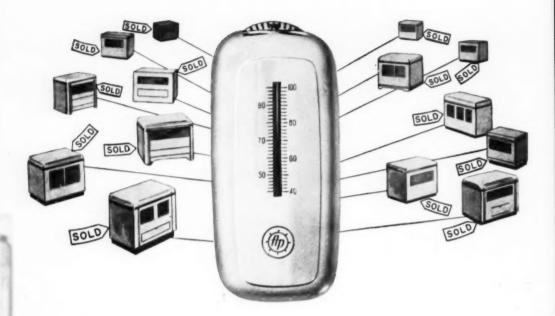


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HERCO HEAT FLO

JUNGERS KEMAC (Canada) KLEER-KLEEN LACO LONERGAN MAGIC CHEF MARCHAND (Canada) MONARCH MONARCH (Co. MONOGRAM NESCO NORGE HEAT ORAN PERFECTION PREWAY QUAKER QUAKER (Canada) SAFEWAY SCOTSMAN SIEGLER SILENT FLAME SUPERFLAME THARRINGTON THERMO-PRODUCTS TORRIDAIRE WASHINGTON FRUGAL

INTERNATIONAL

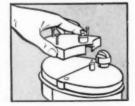
Your customers won't be without Automatic Control . . . once you show them

A-P Comfort Control is the easy-selling accessory that makes every space-heater customer a satisfied customer. If you sell any of the space heaters on the list at left, you can offer the comfort and convenience of thermostatic heat control, plus fuel saving economies... for less than the cost of a subscription to a favorite newspaper.

So easy to install, you can pocket the added profit without the worry of service problems. Start cashing in today with this Extra-Profit builder. Show it . . . and you're sure to sell it.

Easy to install

Conversion top easily attaches to regularly furnished manual control. Kit furnished complete with thermostat and plug-in transformer. Choose A-P Electric or Mechanical control — for gas or oil-fired heaters. Specifically designed and built to exact space heater requirements.



A-P CONTROLS CORPORATION

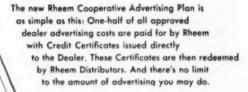
(formerly Automatic Products Company)

2452 N. 32nd St., Milwaukee 45, Wis. . In Canada: A-P Controls Corp. Ltd., Cooksville, Ont.

Rheem

provides you with a generous

direct-to-dealer co-op ad plan!



To help you take full advantage of the plan, Rheem provides sales-building newspaper ads, in mat form, radio and TV spot announcements, car cards, and designs for painted wall posters. If you are a Rheem dealer and want more information on these selling aids, ask your distributor about them today.

RHEEM MANUFACTURING CO.

General Sales Offices 570 Lexington Ave., New York 22, N. Y. Manufacturing Plants in 22 Cities Around the World

RHEEM MANUFACTURING COMPANY

You can rely on Rheem

1952 DEALER CO. OPERATIVE ADVERTISING PLAN

FOR PLUMBING AND HEATING PRODUCTS



Every RHEEM Gas Furnace is FIRE-TESTED!

When fully assembled, gas and power are connected. The pilot is lighted. The burners are fired. With a 48-point test, trained inspectors make certain that each furnace is ready to deliver the finest in trouble-free, warm-air comfort,

£ 1052 RHEEM MFG. CO.

If yours

SENECA

for basement installation

IN 4 SIZES

85,000 to 150,000 Btu input per hour

WYANDOTTE

for utility room installation

IN 5 SIZES ranging from 55,000 to 125,000 Btu input per hour



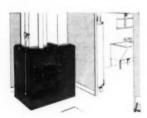
is a gas market...

you can "corner" it with these 2 winter air conditioners by American-Standard

● The Seneca — for homes with basements — and the Wyandotte—for first floor installations—meet the heating requirements of modernization jobs and new construction in your community.

Both winter air conditioners are quality built to assure better heating. The heating element of each is made of durable, corrosion-resistant copper bearing steel welded into an integral unit. Large heating surfaces are arranged to eliminate hot and cold spots, resulting in greater efficiency and longer life. Correctly placed baffles divert hot gases to sides of element, heating entire element uniformly. The blower assembly floats on resilient mounting for quietness. Large oil reservoirs on self-aligning bearings assure long bearing life with minimum attention. Individual controls are the finest available. Burners are of cast iron with patented high temperature alloy ribbons.

The Seneca is made in four sizes—from 85,000 to 150,000 Btu input per hour—and the Wyandotte is made in five sizes—ranging from 55,000 to 125,000 Btu input. Manifold piping and controls for the Seneca are sub-assembled, while the Wyandotte is shipped completely assembled and pre-wired. Both units burn natural, mixed, manufactured, liquefied petroleum, or LP-air gas efficiently and economically. For more detailed information, contact your wholesale distributor.



Just right for today's small to average sized modernization jobs or new construction



THE SENECA Winter Air Conditioner is ideal for transforming bleak basements into attractive, useful rooms. All controls are concealed, yet easily accessible. THE WYANDOTTE is only about 2-ft. square. It is ideal for minimum-space installations, in first floor utility rooms, alcoves, closets, kitchens, or small basements.

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

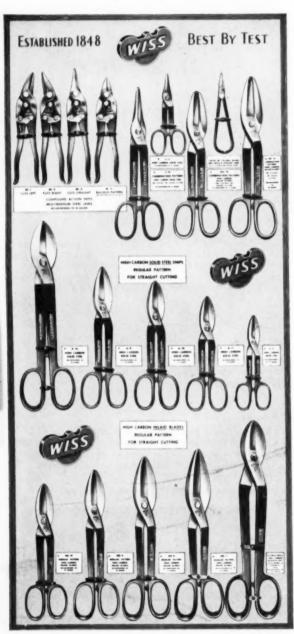
American-Standard



Serving home and industry

AMERICAN-STANDARD - AMERICAN BLOWER - CHURCH SEATS - DETROIT LUBRICATOR - KEWANEE BOILERS - ROSS HEATER - TONAWANDA IRON

This Display Sells Snips... Fast!



53" high x 241/2" wide

Approx. shipping weight 72 lbs.

WISS NO. 1

Here is the best snip "salesman" ever developed. Not every dealer, of course, can use a panel of this size, BUT EVERY DEALER WHO HAS IT ON HIS FLOOR CERTAINLY DOES SELL SNIPS!

Snips are mounted on attractive jade green plywood panel. Stock number and description of each item is clearly marked on gold and black decals, which also show the heaviest gauge metal each snip will cut. IT'S EASTY FOR YOUR CUSTOMER TO CHOOSE EXACTLY THE RIGHT SNIP FOR HIS PARTICULAR NEEDS, and the information is invaluable to sales clerks when customers need help in selecting the right tool for the job.

CONTENTS -1 pair each

Size

Retail Price

INLAID BLADES

5	17"	Bulldog regular pattern	\$7.75
7	141/2"	Regular pattern straight cut	6.25
8	1334"	Regular pattern straight cut	5.75
9	121/2"	Regular pattern straight cut	5.25
10	111/2"	Regular pattern straight cut	4.75
18	131/2"	Combination pattern	6.25
19	121/2"	Combination pattern	5.75
		SOLID STEEL	-
A-16	16"	Bulldog comb. pattern \$	5.75
A- 9	1214"	Regular pattern straight cut	3.00
A-10	11"	Regular pattern straight cut	2.70
A-11	934"	Regular pattern straight cut	2.35
A-12	8"	Regular pattern straight cut	2.00
V-13	7"	Combination pattern	1.85
V-19	13"	Combination pattern	3.65
J7-CB	7"	Light metal Jewelers Snips	2.65

COMPOUND ACTION SNIPS

M-1	10"	Cuts left \$	4.25
M-2	10"	Cuts right	4.25
M-3	10"	Cuts straight	4.25
M-5	91/6"	For notching	4.25
		TOTAL RETAIL\$	32.70

Prices slightly higher Denver and West DEALER'S NET COST. \$55.13 PANEL FREE

J. WISS & SONS CO., NEWARK 7, N. J.





give them the comfort they want with automatic heat controlled by the PENN heat-anticipating thermostat

More and more dealers are doing just that... and they are learning it pays off in better-satisfied customers, more sales and higher net profits.

On your next heating job, try PENN controls. Remember ... they are available for every type of heating system with every kind of fuel. Ask your burner manufacturer, wholesaler or write Penn Controls, Inc., Goshen, Indiana. Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls Limited, Toronto, Ontario.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

YOU MAY Save 3.15 POUNDS PER SHEET*

WITH

Micro-Rold®

STAINLESS STEEL

When you order sheet by gauge number the permissible A. I. S. I. variation in thickness is plus or minus 10%. Thusly, if you order 18 gauge, you may receive a sheet .052 thick when .0475 would suit your purpose. Using a standard 18 gauge 36"x 120" sheet as an example, the theoretical weight is 63 pounds, but this weight could permissibly vary between 65.52 pounds and 59.22 pounds.

A sheet of MicroRold .0475 thick with a tolerance of only 3% would weigh 59.85 pounds thus insuring a saving of 3.15 pounds from the theoretical average-weight, or 5.67 pounds from the maximum, while still remaining within the 18 gauge ordering range.

Weight of One Sheet of 18 Gauge 36" x 120" Plus or Minus 10% .052"—65.52 Pounds .051"—64.26 Pounds .050"—63.00 Pounds .049"—61.74 Pounds .048"—60.48 Pounds .047"—59.22 Pounds

Theoretical Wt. 63.00 Pounds

Weight of the same size sheet of .0475 plus or minus 3% is 59.85 pounds with an average saving of 3.15 pounds per sheet.

Multiply this saving by the number of sheets you use per month and the price per pound and you have a good dollar and cents reason for buying MicroRold.

* Each additional 1/1000" of thickness adds 1.26 pounds weight per sheet.



WASHINGTON STEEL CORPORATION

WASHINGTON, PENNSYLVANIA



GET THESE 6 DEALER ADVANTAGES WITH Thatcher

MINIMUM Sales Resistance . . . You can say "Yes" with enthusiasm to every question about modern features that spell cleanliness, safety, convenience, quality, dependability and automatic, care-free operation.

MINIMUM Installation Time . . . Each unit is the result of constant progress in design—the last word in easy erecting—to assure you less work, less time, less cost.

MAXIMUM Appearance . . . Streamlined design handsomely styled in deep maroon or maroon and grey to blend with color schemes anywhere.

MAXIMUM Selection . . . No matter what the heating problem (gas, oil or coal) Thatcher has the correct model and size to meet the need.

MAXIMUM Sales Support . . . It's yours from all departments—including a "get up and go for greater sales" advertising and sales promotion program.

maximum Profit . . . In the original sales, and in greater volume because of word-of-mouth praise and prestige of Thatcher equipment. That means more and more sales come your way with less selling effort and expense. F YOU were buying heating equipment instead of selling it, chances are ten to one you, too, would insist on getting all the following features for your investment:

Even-temperature warmth for perfect indoor comfort. The carefree convenience of automatic heat. The latest in engineering principles for long, trouble-free operation and efficient performance. Eye-pleasing modern design. A model and size that will meet your exact needs. A well-known brand name at a price within your budget.

Thatcher, the oldest and one of the most reliable names in heating, has the line that was constructed to give homeowners all these features . . . and more!

Take the first step toward getting a bigger share of the new homes and replacement markets today. Write Thatcher Furnace Company, Garwood, New Jersey for our new catalog containing all the facts!





Efficiency Dropped with the Temperature in the 90's



Cold hands put a "frostbite" on production efficiency in the 1890's. Today, efficient unit heaters force billows of warm air to every corner of even the largest plants. The temperature stays up...so does worker efficiency.

Mechanized plant heating is just one of the factors, selected from a multitude of industrial applications for motor power, which has contributed to the present era of mass production methods.

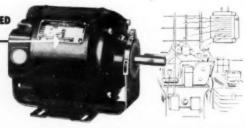
Ever since its founding in 1890, Emerson-Electric has specialized in building dependable motors for equipment used in industry, on the farm, in business, and in the home. There is a complete line of Emerson-Electric motors in ratings from 1/20 to 5 horse-power. Your inquiry is invited. THE EMERSON ELECTRIC MFG. CO., St. Louis 21, Mo.

MODERN INDUSTRY IS POWERED WITH ELECTRIC MOTORS



Manufacturers requiring motors 1/20 to 5 h.p. can profitably use these reference guides. Specifications, construction and performance data are included for these motors:

M118-A Capacitor-Start M118-E OH-Bur M118-B Split-Phase M118-F Jet Pur M118-C Integral M118-G Blower



EMERSON ELECTRIC

LEADERS IN THE FAN AND MOTOR INDUSTRY SINCE 1890



rate a big OK
for Ingersoll's

VALUE PROVED FEATURES	WHAT THEY MEAN TO YOU	
Assembled, tested and adjusted	Easy to install. Cuts installation time and costs.	
Heavy gauge steel heat exchanger	Large heating surface provides fast, efficient heat transfer. Cylindrical combustion chamber and square radiator electrically welded fume-light	
Removable cast iron burner with raised dnilled ports	Assures quiet operation, long life, maximum com- bustion performance. Burner head or complete burner removable for inspection and cleaning	
Compact packaged unit	Fits in limited space, makes installation easier	
Large clean-out openings are readily accessible	Conveniently located for easy access and inspection through top front cabinet panel.	
Heavy insulation	Keeps outer jacket cool, minimizes heat loss provides maximum transfer of heat Heav layer of fiber glass, aluminum foil facing, plus radiation shield.	
Convenient manifold	Permits either right or left hand gas inlet.	
Precision controls	Right combination to meet local customer and utility preferences. Provide positive shut-off noiseless operation, accurate temperature con trot. Readily accessible.	
A.G.A. approval	For all gases including high altitude ratings	

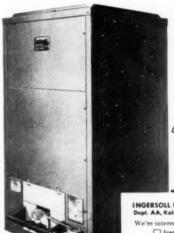
Terrific value for the new-construction market

Get set for sales! Make way for profits! Here's the Ingersoll Gas Gravity Furnace that means business—for you!

Loaded with V.P.* features, it's in a class by itself in design, construction, performance. Inside and out, top to bottom, it's Shirtsleeve Comfort-engineered, with customer satisfaction built right in.

Exceptionally compact—to fit in limited space. Efficient and economical—for moneysaving performance. Fully approved by A.G.A. for use with natural, mixed, manufactured, LP, and LP-Air gases. Popular sizes—for your biggest market of small and medium size homes, stores and offices. And especially suitable for the tremendous newconstruction market.

All in all, it's a competition beater you'll be glad you're selling, not selling against! Mail coupon for full details.





Ingersol

HEATING EQUIPMENT

for Shirtsleeve Comfort

Gas, Oil, Coel • Gravity, Forced Air Gas-Oil Combinations • Conversion Burners • Gas Bollers

INGERSOLL PRODUCTS DIV., Borg-Warner Corp. Dept. AA, Kalamazoo, Michigan

We're interested! Send literature and details for:

| Franchise Distributor | Dealer

Send us literature, too.

Architect

Contractor

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Address....

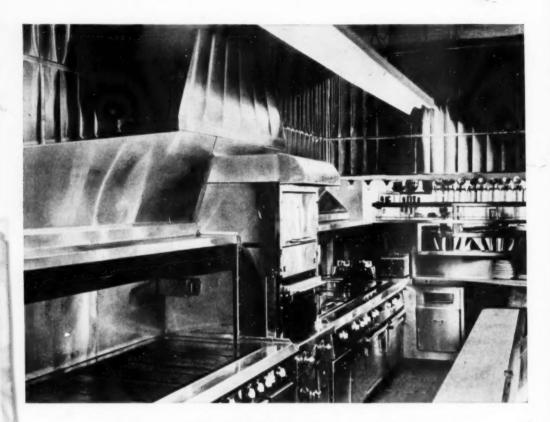
State



INGERSOLL PRODUCTS DIVISION

Berg-Warner Corporation

Kolomozoo, Michigan



Here is **BEAUTY** and **UTILITY...** in type 430 stainless

This stainless steel kitchen "sells itself." The decorative design is well thought-out and interesting. It is distinguished looking, yet gives the customer a feeling of warmth and comfort. This has been accomplished by straight and sunburst designs on the panels to break the monotony of flat surfaces.

Vent hoods, all panels and decorative work are of Type 430 stainless steel. This is the stainless steel that is readily available today, free from Government restrictions imposed on the nickelbearing types like 18-8, Type 302.

Same Finishes as 18-8

You'll be glad to know that Armco 17, Type 430, is produced in the same gages, sizes and finishes as 18-8. It is one of the oldest standard types of stainless steel and has given an excellent account of itself over the years—in architectural applications and products not exposed to unusually severe corrosive conditions.

In many applications Armoo 17, Type 430, serves well as an alternate for the old stand-by, 18-8 stainless steel.

Stay in the Stainless Business

With Armco 17, Type 430, you can build satisfactory stainless installations that will make your reputation as a fabricator of stainless steel. When you are in doubt about the suitability of the grade for a job, talk it over with your Armco Distributor. He can supply you with fabricating data too.

ARMCO STEEL CORPORATION

3212 Curtis Street, Middletown, Ohio • Distributors from coast to coast • Export: The Armco International Corporation



FOR MORE PROFITS-

Push the gas line that fits every heating need—

Fluid heat



Don't let your customers' heating requirements stump you! Small home, medium-size, or large there's a Fluid Heat gas-fired unit that will heat it better, with fewer troublesome service calls to

annoy you - and your customers!

Take a look at the four models shown on this page . . . from Fluid Heat's complete line of gas heating equipment. Modern in appearance, neat and attractive, they're sure to appeal to your cus-

tomers! What's more, inside these gleaming new cabinets is the best engineered, most dependable gas unit that can be built! Fluid Heat stakes its reputation on that—a reputation built on over 30 years' experience in the heating field!



Start pushing these models today! If you're not already a Fluid Heat dealer, learn how you can cash in on this profitable line. For complete details, write to the address below.



Fluid heat

"WORLD'S ECONOMY CHAMPION"

Division of ANCHOR POST PRODUCTS, INC. . 6720 Eastern Avenue, Baltimore 24, Maryland

Century MOTORS

Choose From These Many Types
to Fit Your Job
HEAVY-DUTY for Industrial and
Appliance Use

proper motor for all popular applications. You can be confident that the right Century motor will assure a long life of satisfactory performance.

Shown here are examples of Century's line of FRACTIONAL HORSEPOWER motors—ruggedly built for smooth, quiet operation, with a remarkable freedom from vibration



TYPE CSH — Capacitor Start Induction Single Phase Motor suitable where high starting torque and normal starting current is satisfactory.



TYPE SP — Split Phase Induction, Rigid Base, Single Phase Motors suitable for light starting duty.



TYPE SC — Squirrel Cage Polyphase Motor built in fractional sizes for all torque requirements.



JET PUMP MOTOR—Capacitor Start Single Phase Motor available in sizes for practically every jet pump application.



TYPE SP — Split Phase Induction, Cushion Base, for quiet operation.



OIL BURNER MOTOR especially designed for this service. Compact, rugged, smooth, quiet starting and running.



TYPE RS — Repulsion Start Induction Single Phase Brush Lifting Motor suitable for applications requiring high starting torque and low starting current.



TYPE DM — Direct Current built in sizes and ratings for applications where direct current is available or its use desirable.



UNIT HEATER MOTOR provides smooth, quiet performance throughout a long service life.



GEAR MOTOR, compact, rugged, ball bearing equipped, for your high torque, slow speed requirements. he complete line of Century motors includes a wide range of types and kinds, from 1/8 to 400 horsepower. They are available in open rated, splash proof, totally enclosed fan cooled and explosion proof frames.

Specify Century motors for all your electric power requirements.



CENTURY ELECTRIC CO.

1806 Pine Street St. Louis 3, Missouri

OFFICES AND STOCK POINTS IN PRINCIPAL CITIES

What...a Counterflow WITHOUT 'BUGS'?

YES... before we designed this furnace we asked the men who knew—heating contractors, consultants, distributors, dealers, installers and service men.

They told us what they wanted in design . . . in blower size . . . performance . . . accessibility . . . flue location . . . and a dozen other things—as well as what they didn't want! The new Perfection Counterflow furnace is the result . . . the "bugs" have been designed out . . . desired features designed in.

This is the Counterflow furnace to sell and install. You'll "makeout" better on every job.

all Counterflow furnaces are NOT alike!

EASY, LOW-COST INSTALLATION. Comes as a packaged unit, fully wired and assembled. Three simple connections to make – fuel supply, 110-volt line and thermostat cable.

READY ACCESS through front panels to fully-enclosed controls, burner, blower, motor and cleanout ports.

CONVERTS TO GAS IN 15 MINUTES. Oil burner slips out for easy replacement with Perfection gas burner.

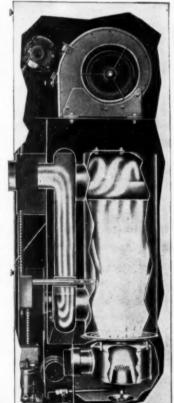
COMPACT. Height -68%"; width -22"; depth -25".

DURABLE, ATTRACTIVE. Sturdy box frame construction; rust-proofed casing handsomely finished in gleaming white baked enamel.

HIGH EFFICIENCY. Perfection vaporizing burner with positive supercharged draft.

CAPACITY: F601-74,000 BTU OUTPUT.

PERFECTION STOVE COMPANY
7351-D Platt Avenue • Cleveland 4, Ohio

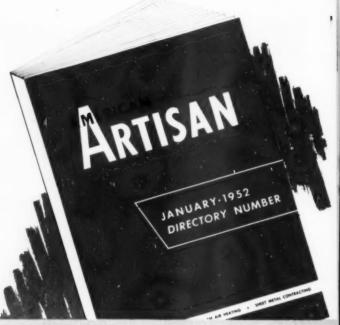


Switchto

Perfection Superfex Counterflow Furnaces

An Added Service for Subscribers





The Directory and Product Data Sections of Your January '52 Issue

Field surveys show that our subscribers
KEEP their Annual Directory Numbers of
AMERICAN ARTISAN throughout the year
. . . for there is a wealth of valuable data in the
January issue as you have undoubtedly discovered.

The Directory section lists every known product used in the field of residential air conditioning, warm air heating and sheet metal contracting . . . and where it can be obtained. This reference section is complete and accurate.

The Directory Number also provides manufacturers with the opportunity to supplement our listings with factual data on their own particular products and services.

Readers find that, in many cases, this product material supplied by advertisers enables them to have comprehensive buying information without lifting the phone or writing a letter.

All subscribers to AMERICAN ARTISAN receive this Directory Number each January. It is included in the subscription price you pay for the Number One Business Paper in the warm air heating-sheet metal field.

FIRST in Editorial . in Paid Circulation . in Advertising

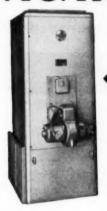
Don't STOP at the city limits

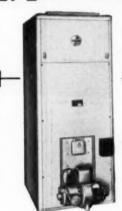
More and more homes are being built beyond gas lines. And when you handle NIAGARA furnaces your profit opportunities don't stop at the city limits.

NIAGARA Oil-Fired Furnaces, in addition to Niagara Gas-Fired and Coal-Fired Furnaces, enable you to meet ANY and ALL modern homeheating requirements ANYWHERE - including the big suburban and rural markets.

ENLARGE YOUR PROFIT POTENTIALS WITH THESE

NIAGARA OIL-FIRED FURNACES







with Blower and Filter in base of furnace, for utility room or basement installations.

DOWNFLOW

with Blower and Filter in top of furnace, for perimeter heating installations, or heating systems for basementless houses.





Conventional type models-gravity and forced air —for basement installations . . . including Deluxe forced-air models with 3-speed direct-drive blower.

NIAGARA FURNACES

are engineered for specific fuels:

OIL FURNACES FOR OIL

GAS FURNACES FOR GAS COAL FURNACES FOR COAL

NIAGARA is the word for Maximum Heat at Minimum Cost.

Write today for complete information on the profit opportunity with Niagara furnaces.

NIAGARA FURNACE DIVISION THE FOREST CITY FOUNDRIES CO.

2500 WEST 27th STREET . CLEVELAND 13, OHIO

GAS - OIL - COAL FURNACES NIAGARA

UTILITY'S TOPA

Dy-Rekt Drive



Blower*

Sy-Lent Heat

Exchanger*

*Registered

UTILITY'S NEW "70FA" IS EASIEST TO SELL BECAUSE OF THESE FIVE REVOLUTIONARY NEW FEATURES:

 New Dy-Rekt Drive Blower* is quietest yet—because of exclusive integrated, directdrive assembly.

 Newly-engineered Sy-Lent Heat Exchanger* practically eliminates noise as the furnace heats and cools.

 Approved for Zero Clearance—can safely be installed flush with combustible material. No outside insulation needed.

4. Easiest to install—can be spotted in only 14" x 251/2" floor space—in closets, alcaves, etc. Completely self-

3. The Utility Model "70FA" 70,000 BTU Forced Air Furnace is fully approved under latest AGA require-

Utility Appliance Corp., Dopt. A-632 [70-FA]
4851 South Alameda St., Los Angeles SB, Calif.
Please send me FREE further information on the complete Utility line.

Name

Address

(| State

Sensational Low Price Zero Clearance

new high-performance furnace with unbelievable profit opportunities: The Utility "70FA"—a full 70,000 BTU forced air furnace at an amazingly low price we believe no other maker can match. The new Utility "70FA" 70,000 BTU Forced Air Furnace provides big-furnace luxury heating at a sensationally low price. It is also ideal for economical zone heating of larger

homes. And it practically sells itself at its highly competitive price—so push the new Utility "70FA" and watch the profits roll in!

♠ Your sales territory may be open—mail coupon today!

DELIVERIES

UTILITY

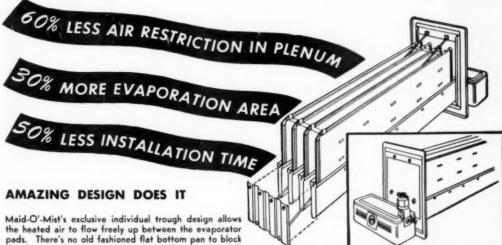


UTILITY APPLIANCE CORP. 4851 South Alameda Street, Los Angeles 58, Calif.
MANUFACTURERS OF AIR COOLERS, GAFFERS & SATTLER AND OCCIDENTAL AUTOMATIC GAS RANGES

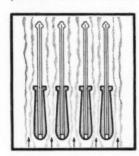
HOW MUCH BETTER ARE

MAID-O'-MIST CONVECTOR HUMIDIFIERS

... for you ... for your customers?



the flow of heated air and reduce efficiency in small plenums. The entire area of each of the large evaporat-



ing pads is in direct contact with the warm air flow, thus providing 30% more evaporating area. Maid-O'-Mist Convector Humidifiers reduce air restriction to a minimum and at the same time provide this greater evaporating area. That's why Maid-O'-Mist exclusive design is ideal for the small plenums of all modern warm air furnaces.

READY TO INSTALL

Maid-O'-Mist Convector Humidifiers come completely assembled. All you do is cut the proper size opening in the plenum and attach the plenum flange frame. Slip in the factory assembled unit and make the necessary water connections. That's all.

Remember Maid-O'-Mist's advantages mean more profit for you. Make every installation a Maid-O'-Mist Convector Humidifier. Get full information from your jobber or write for Bulletin 701-B.

13 DIFFERENT SIZES AVAILABLE

Maid-O'-Mist Convector Humidifiers have evaporation capacities of 1 to 10 gallons of water per day, depending on size. Made entirely of non-ferrous metal and equipped

with automatic (float-operated) supply valve. Design permits adjustment of up to 30° pitch for sloping bonnet



AUTOMATIC HUMIDIFIERS AUTO-VENTS WATER LINE CONTROLS . HEATING SPECIALTIES MAID .O'. MIST, Inc.

3217 NORTH PULASKI ROAD . CHICAGO 41, ILL.

Chrysler Airtemp Comfort Zone

BETTER BUSINESS BUILDER FOR YOU

Look over these ten points for profit. You'll readily see why the Chrysler Airtemp Comfort Zone is a big business builder for dealers. With Chrysler Airtemp's complete line of all year products - heating, air conditioning and refrigeration-every businessman, every homeowner is a red hot prospect. Fill in the coupon

today and let us send you complete details on how you can get in the Chrysler Airtemp Comfort Zone as an authorized dealer.

POINTS FOR PROFIT

Chrysler Airtemp-a recognized name and Chrysler Agreemp—a recognized name and a division of a famous, nationally-known manufacturer. Chrysler Corporation—pro-

vides an unequalled engineering background. All Chrysler Airtemp products are sold through factory-appointed Chrysler Airtemp dealers and distributors.

Chrysler Airtemp dealers are appointed on the basis of local market opportunities.

Chrysler Airtemp products cover three basic markets residential, commercial and in-

Ghrysler Airtemp engineered and pioneered the original "Packaged" Air Conditioner and developed the first Year-Round air and developed the first rear known air conditioning (combination heating and cooling) system for the home. The cooling unit alone can be added to any forced warm

Chrysler Airtemp offers dealers a wide range of capacities in warm air furnaces range or capacities in warm air immaces for gas and oil—cooling units, from 34 HP to 100 HP—air filters and dehumidifiers.

Chrysler Airtemp sales programs are designed to capture both new and replacement markets, plus service revenue. Chrysler Airtemp maintains 15 Regional

Sales Offices, a corps of field engineers and experienced district representatives to help

Chrysler Airtemp national advertising has developed, over the years, a great public acceptance and demand for Chrysler Airtemp products.

Chrysler Airtemp cooperative advertising Chryster Attemp cooperative advertising plans and sales campaigns provide real, hard-hitting dealer helps at the local level.

*COMPLETE FIVE-YEAR WARRANTY

Sealed Radial Compressor units in Chrysler Airtemp "Packaged" Air Conditioners carry an optional five-year warranty, through dealers. This warranty covers compressor replacement, freight to and from the factory, plus a labor allowance for removing and installing compressor assemblies.

Airtemp Division, Chrysler Corporation Dayton 1, Ohio

Send immediately full details about Chrysler Airtemp's dealer arrangements without obligations.

FOR YOUR CONVENIENCE

Phone_ Address

Chrysler Airtemp 50

AIR CONDITIONING - HEATING - COMMERCIAL REFRIGERATION Airtemp Division of Chrysler Corporation, Dayton 1, Ohio



Southern California

Program chairman Ed. Sales introduced John Netson. a businessman of wide experience with internal problems of business in respect to government regulations that affect your business through your employees. Mr. Nelson pointed out today's businessman has problems undreamed of twenty years ago. He stated that economy is the keynote to success in current business practices, and by reviewing the employees liability expenses, savings could be made that are almost the difference between breaking even and making a profit. He suggested the Workman Compensation Insurance policy be checked for a more economical rate, the fact that many employers fail to deduct the cost of unemployment tax from their Federal tax is another source of wasted income. Mr. Nelson recommended that all employers review the laws that apply to wages and make the necessary adjustments to prevent being found guilty of Federal and state violations.

Indiana

The third annual Warm Air Heating Short Course has won the hearty commendation of students and officers of the State Association which sponsors the schools in cooperation with the School of Mechanical Engineering and Division of Adult Education, Purdue University.

Credit for the success of the Lafayette meeting is due Carl Butz, Chairman, Ben Speaker, Louie Sage and Ralph Caylor. The increase in registrations indicates a growing interest in practical engineering and installation of warm air heating systems to provide comfort unequaled by any other equipment.

One hundred and ten contractors, salesmen, and students attended the banquet and enjoyed the entertainment provided by the Purdue Musical Organizations.

The lady guests were very favorably impressed by the wonderful treatment accorded them.

The summer meeting of the Sheet Metal and Warm Air Contractors Association of Indiana will be held July 11 at the Deming Hotel, Terre Haute. The program is to be sponsored by Braden Mfg. Co. of Terre Haute. Manager J. Beard has outstanding speakers lined up and plenty of entertainment is planned. Chairman of the Arrangement Committee, W. B. Balfe, states that at least 150 members and guests are expected.

Rumor has it that the "Fur-mets" will put on some interesting affairs as they customarily do at the State Conventions.



The Manufacturers Supply Group from Youngstown who recently visited C. A. Olsen Manufacturing plant at Elyria, Ohio to learn how Winter Air Conditioning equipment is made.

You can see and sell this FW HFATING EFFICIENCY!

Windmaster Draft Control

Check these exclusive design and engineering features of the Windmaster Draft Control. You can sea why it will increase heating efficiency from 10% to 15% in almost every installation. And, you can see why you can sell these exclusive advantages right down the line.





GREATER EFFECTIVE AREA. The Windmoster vone is mounted on an angle to increase the effective area. This results in faster and more accurate responses to draft changes—better operating efficiency for the heating unit.



COMPLETE RANGE OF SIZES. You can be sure of the proper size for maximum heating efficiency on every job. The Windmaster is available in a complete range of sizes from 6" to 24".



LESS ROTATIVE ANGLE. Because the vane is mounted on a 45" angle, it can open fully while moving through a much smaller arc than a vertically mounted vane which must rotate through 90°. Vane rides freely on Torrington spherically seated bearings.



CUTS INSTALLATION TIME TO 3 MINUTES. Takes only 180 seconds to install the Windmaster. Exclusive adapter* fits snugly in as a pipe section in any flue. Patented control snaps quickly into adapter for horizontal, vertical or slaping flue positions.



CALIBRATED BALANCE*. This remarkable balance is calibrated so it can be accurately set in 3 seconds without special tools or instruments. Can be quickly locked in place at the furnace manufacturer's draft specifications for full air action and best efficiency.

Act now to capitalize on these exclusive Windmaster Draft Control advantages you can see and sell. Write today for prices and literature.

*Patent Pending

orporation 897 INGLESIDE . COLUMBUS 8, OHIO





Warm Air Furnace and Air Conditioning League of Cleveland believes in knowing all about the products they sell and install. They were recent guests of the C. A. Olsen Co., Elyria, Ohio where lunch and a tour of the manufacturing plant were part of the day's activities.

Illinois

Adolph E. Hatley, Central Indiana Gas Co., Muncie, Ind., chairman, Midwest Regional Gas Sales Council, stressed the need for changes in the selling pattern if continued growth is to be expected in this industry. Mr. Hatley said there was plenty of merchandise, materials and money available, in fact everything was in good supply except salesmanship. Production will exceed demand as long as this void exists.

Chicago

The Chicago Warm Air Golf Association held its first outing of the season Thursday, May 22, at Acacia Country Club. Following the golf tournament, 39 members and guests enjoyed a steak dinner and the awarding of prizes.

George F. Anderson, Condensation Engineering Co., won low gross; low net was won by Clarence J. Meunier, Jones Sheet Metal. Highest score was turned in by Harry Ziehm, H. A. Ziehm Co.

Wally Klein, Austin Sheet Metal Works, won the blind bogey. Harry Himelblau, Himelblau Associates, Inc., placed second, and Larry Ingham, Aire Flow Heating Co., Harry E. Duerst, Lennox Furnace Co., E. R. Jantz, Republic Metals, Howard Maccubbin, Steinen Mfg. Co., Len Miller, Crosstown Heating Co., tied for third.

The next tournament will be held at River Forest Country Club on July 10.

Coming Events

June 16-18 — American Society of Heating and Ventilating Engineers Semi-Annual Meeting. Essex and Sussex Hotel, Spring Lake, N. J. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York, N. Y. June 23-24 — Stoker Manufacturers' Association Anpual Meeting. South Shore Inc. Lake Workson

nual Meeting. South Shore Inn, Lake Wawasee, Syracuse, Ind., Secretary, 307 N. Michigan Ave., Chicago, Ill.

Oct. 27-31 — American Gas Association, Annual Convention and Gas Appliance Exposition. Auditorium, Atlantic City, N. J. H. Carl Wolf, Managing Director, 420 Lexington Ave., New York, N. Y.

Dec. 3-4 — National Warm Air Heating and Air Conditioning Association 39th Annual Convention. Sheraton-Gibson Hotel, Cincinnati, Ohio. George Boeddener, Managing Director, 145 Public Sq., Cleveland, Ohio.

Dec. 5-7 — Refrigeration Equipment Manufacturers Association 10th All-Industry Refrigeration and Air Conditioning Educational Exhibit and Conference. Miami Municipal Auditorum. John H. Spence, General Chairman, REMA, 1346 Connecticut Ave., Washington 6, D. C.

Jan. 26-28, 1953 — National Heating Wholesalers Association, Inc. Annual Meeting. Congress Hotel, Chicago, Ill. E. L. Wyman, Executive Secretary.

"Heating dealers can't afford to gamble with their reputation"

says Clark Johnson, owner of the Oil-Elec-Tric Company, St. Paul, telling why he recommends the Honeywell Time-O-Stat



Clark Johnson, eight, talks it over with Honeywell saleiman Bud Lamont

"Any heating dealer will tell you that.

"This is a service as well as a selling business. Success or failure in it, just as in the case of a doctor or lawyer, depends a lot on the reputation you build in your area over a period of years.

"That's why I recommend the Honeywell TIME-O-STAT on my jobs. With the TIME-O-STAT in charge, I know customers will be satisfied with their heating plant.

"For, have you ever noticed that customers who are pleased with the operation of their controls (probably because they see and use them more!) are generally satisfied with their entire heating plant? The controls on a heating plant, to home owners, must be something like the steering wheel and dashboard of their automobiles. If I used cheap, inferior, or off-brand controls I might jeopardize the results of my whole installation.

"The heating business is my livelihood. And I don't like to gamble with my bread and butter!"



Another Plus-Profit Idea from Honeywell!

Sell the famous Honeywell Time-O-Stat!

Day-night control with automatic morning pick-up distinguishes the Time-O-Stat from ordinary thermostars! This feature offers you a mighty important profit opportunity: a recent survey showed that 3 out of every 4 people with thermostats raise and lower temperature settings in their homes every day, by hand. The Time-O-Stat is available in warmer climates with a positive shut-off switch. For information and application data on the Time-O-Stat, write today to the Minneapolis-Honeywell Regulator Company, Dept. AA-6-102, Minneapolis 8, Minnesota.



First in Controls



EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For new literature giving product information which is available, see page 129.

Three New Furnace Models

Addition of three new oil fired warm air furnaces is announced by the Niagara Furnace Div. of the



Forest City Foundries Co., Cleveland, Ohio.

Gun type pressure atomizing burners are used. The new furnaces are made in three types: gravity, high boy and downflow (illustrated). They are designed for homes with or without basements.

A descriptive folder is available from the manufacturer. AA1

Cost-Cutting Pattern Tool

A NEW TOOL that eliminates lengthy calculations, guesswork and troublesome pattern inventories has been introduced by the Jet Pattern Developer. It is easy to operate and provides a quick and practically automatic method of laying out patterns for any type of sheet metal transition fitting.

Of all aluminum construction, the tool is readily adjusted to various angles and lengths. Patterns can be laid out exactly without computations of any kind, and fittings are perfectly formed without buckling. Manufactured by the JET TOOL Co., San Jose, Calif.

AA2

Sheet Metal Fabricator

WALES-STRIPPIT CORP., North Ton-awanda, N. Y. announces a new

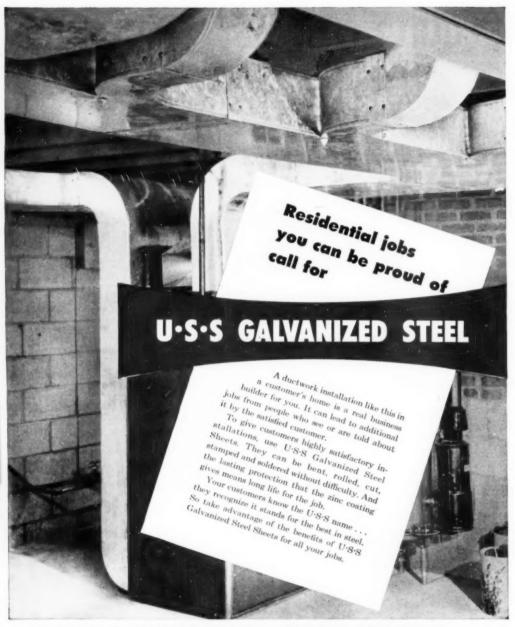
model fabricator that punches and notches up to ½ in. mild steel from blueprints or operation sheets, no templates required.



The head operates with a minimum of vibration and noise at 165 strokes a minute and is revolutionary in its simplicity of design and operation.

A wide, unobstructed bed table

FOR YOUR CONVENIENCE American Artisan 6 N. Michigan Ave., Chicago 2, Ill. This coupon is for your Please ask the manufacturers to send me full particulars about the equipment menconvenience in obtaining tioned under the following reference numbers in Equipment Developments and new Literature more information about any of the equipment mentioned in this issue or copies of the literature offered in the readers' (Circle each number in which you are interested) Equipment Development 6 4 ervice section. Keep your record and sources of supply up to date by adding the new New Literature products and companies listed here to your Jan-uary 1952 AMERICAN ARTISAN directory sec-260 273 274 275 276 277 288 289 290 tion. Name Company Address



U·S·S GALVANIZED STEEL SHEETS

UNITED STATES STEEL COMPANY, PITTSBURGH . COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO TEMMESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. . UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

2-038

Coupon on page 105

is at the correct height for easy feeding of large sheets or for the operator to sit down while feeding small pieces.

Dual control of the ram strokes is provided by an adjustable foot trip mechanism for use when both hands are required to feed work. AA3

Heat Resisting Aluminum Paint

An aluminum paint has been developed by the ILLINOIS BRONZE. POWDER CO, Chicago. The paint is formulated of chemically pure aluminum powders to insure lasting protection against peeling, discoloring and blistering at high temperatures.

Advantages cited by the manufacturer are one coat covering—spray or brush; no special surface preparation, and one to two hours drying time. It is recommended for numerous home and industrial uses including furnace founts, ovens, smoke stacks, and engines.

Bulletin and complete information are available on request. AA4

Compact Highboy

REPUBLIC PRODUCTS Co., Philadelphia, Pa., has introduced a new highboy type furnace. Exceptionally low stack temperature and faster heating are special features of the new furnace.

Unusually compact in size, it has been designed for use in restricted space installations such as utility



rooms, closets, attics, etc., of basementless homes. It is particularly adaptable in the low cost home.

The unit is complete with a cen-

trifugal blower and precast combustion chamber. Heat transfer unit and radiator is of new vertical design allowing unrestricted flow of the hot combustion gases against the inner walls.

AA5

Tinners Furnace

J. D. Polis Manufacturing Co., Chicago, is now manufacturing the Torrid Tinners Furnace. The furnace was recently purchased from the former manufacturer and is again available.

It uses gasoline for fuel and can be ready to operate within 5 minutes. Light weight and easily portable, it operates efficiently indoors



or out and in all types of weather. The furnace is equipped with a cast horse shoe burner that produces a torrid blue flame.

Excellent for tinners, roofers, metal-workers and maintenance men. AA6

Molded V Belt Sheaves

W. C. PRODUCTS, INC., Santa Monica, Calif., is making a line of V belt molded sheaves for light machinery drives. They are made of a new type of fibrous material molded to close tolerances under high pressure.

The sheaves are stocked in sizes from 2 in. to 6 in. OD in gradations of $\frac{1}{2}$ in. Bore sizes are $\frac{1}{2}$ in., $\frac{5}{8}$ in. and $\frac{3}{4}$ in., with or without keyways.

Wafer Motor

This New MOTOR features an exceptionally short overall length and is ideally suited to applications requiring a totally enclosed, air cooled unit with a flat design. It is available in ratings from 1/20 through 5 hp and in speeds from 450 to 3,600 rpm—single phase or polyphase.



An example of the unit's value is apparent on ventilating and air moving installations where the motor itself is to be mounted within the duct or exhaust vent. The frame design permits mounting by means of ears, or drilled and tapped holes in the endbells. It can be mounted in any position, shaft up or down. When mounted in this manner, the fan can be connected directly to the motor's output shaft, eliminating the usual pulleys, belts, brackets and fan shaft. Made by Reuland Electric Co., Alhambra, California.

A Third Hand

A HAMMER NAIL clip that fits most types of hammers is being offered by AMSCO Co., Le Center, Minn.

It allows free use of one hand while starting a nail and gives a hammer's length extra reach. Handy for form work, nailing panels on ceilings and countless other tasks where reaching is required.

AA9

Compact Furnace

Perfection Stove Co., Cleveland, Ohio, has designed a new counterflow furnace for perimeter heating. This new furnace has a 74,000 Btu oil burner which may be converted to gas in a matter of 15 minutes.

A compact heating plant ideal for alcove or utility room installation and is delivered as a packaged unit, fully wired and assembled. There are only three connections to be made at the time of installation:

(Please turn to page 122)



A BURNER DESIGN MATCHED TO SPECIFIC UNITS

Fits the picture for quiet, efficient, low-cost operation in small home heating — produced on a background of 108 years experience in the building of oil-burning devices.

The Miller Flange-Mounted Vaporizing Oil-Burner with Miller Controls

It is a quality-controlled, precision-built, factory-tested, field-proven burner, designed exclusively for small homes. It has positive means for leveling built in, making leveling easy and independent of furnace setting—a constant-level valve with automatic safety—no manual re-setting—no flooded pots to be drained before lighting—fixed high fire and pilot—fixed air setting—no field adjustments required—a room thermostat that gives accurate close control of room temperature. Operation is quiet. And operating cost is low. Packaged ready for use.







WRITE OR WIRE TODAY FOR FULL DETAILS

THE miller COMPANY

MEATING PRODUCTS DIVISION, MERIDEN, COMMECTICUT

PLIUMINATING DIVISION: Fluorescent, forcadencent, Mercury Lighting Equipment NEATING PRODUCTS DIVISION: Domestic: Onl Burners and Liquid Fuel Devices ROLLING WILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Bulls





...and all in I package!....

- Easy to handle, easy to stock, easy to deliver for installation . . . the A. O. Smith Model 201 is compact in its factory-sealed container.
- Included, and easily assembled, are all parts required for installation; including burner and control housing and duct, gas pressure regulator, necessary tubing, transformer, thermostat wire and room thermostat.
- Why not plan to put in a suitable stock of these easy to handle, easy to install Model 201's while the present stock is available at yesterday's price?
- · Mail the coupon for full information.





A. O. Smith Corporation, Permaglas Heating Division Dept. AA-652, Kankakee, Illinois

This is important news for you. Here is the gas conversion burner you can bank on to perform satisfactorily in warm air, hot water and steam installations requiring from 60,000 to 200,000 BTU/Hr input. Made by the A. O. Smith Corporation, one of the world's largest

It's Important news because the A. O. Smith

Model 201 incorporates all the features that make A. O. Smith burners outstanding in a crowded field . . . with push-button ignition, exclusive single-port burner with flame-retention port and stainless steel spreader.

It fits any furnace from 18 to 30 inches. Has an adjustable venturi tube! Designed for all gases. And it's simplified for quick and easy

A better chance for profit! Save installation

time and get a better all-around deal with the A. O. Smith Model 201. For a real bidding advantage in gas conversion sales, mail the

manufacturers.

installation!

coupon.

Please tell me all about your "Bidding Advantage" deal on A. O. Smith Model 201 Gas Conversion Burners . . . bow it can mean more profits for me.

SALES: Atlante - Boston 16 - Chicago 4 - Dalles 2 - Denver 2 - Detroit 21 Houston 2 - Los Angeles 22 - Milwaukee 8 - New York 17 Philadelphia 3 - Fittsburgh 19 - San Francisco 4 Seattle 1 - Washington 6, D.C.

International Division: Milwaukee 1 In Canada: John Inglis Co., Ltd., Taronto

SERVICE: Chicago 17 * Dallas 1 * Los Angeles 12 * Union, N.J.

Name
Firm
Address
City Zone State



GET STARTED WITH Stainless IN '52



include Snaptite Faves Trough; "K." Gutter; Plain Round, Corrusated Round and Corrusated Square Conductor Pipe; Ridge Roll; Flashing; Roll Valley; plui a complete line of all necessary hitings. All are made of 28-pauge Republic ENDURO Stainleys Steel, Type 450, dall coat finish. Stainless steel is catching on fast for roof drainage. Now is the time to establish your shop in this growing business... to become known as a stainless steel specialist... to put yourself in position to cash in on those high-profit stainless jobs that are bound to come your way.

It's easy. Berger manufactures a complete line of tested drainage products, fittings and accessories for you. All are made of light, strong Republic ENDURO Stainless Steel.

No special skill is needed for hanging them, other than your own trade knowledge and experience. Your soldering iron should be a large one, heated slightly more than usual. Wash off all flux immediately after soldering with a 5% to 10% solution of washing soda and water.

To help you get started with stainless in '52, you'll find jobbers' stocks of readyto-use Berger ENDURO Stainless Steel Roof Drainage Products in most areas. These quality products also are manufactured in galvanized steel and Toncan Iron.

Serger Manufacturing Division

Offices in BOSTON, PHILADELPHIA, ST. LOUIS, DETROIT and INDIANAPOLIS

Kausline

Presents ...

The JERSEY 75 OIL-FIRED "COUNTER-FLO"

Logical design for the home WITHOUT A BASEMENT!

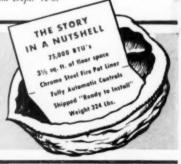
- Saves time Saves material Easy installation
- One complete package
- Low initial cost
- Engineered specifically for utility room or closet installation in slab or crawl space homes
- Designed primarily for warm air perimeter heating
- Ideal for large scale, low cost, housing developments

Cut installation costs, overcome metal shortages, discharge warm air from the bottom of the unit directly into the crawl space underneath the dwelling. For conventional perimeter heating, ducts can be formed right in the concrete during slab type floor construction. The use of vitrified clay pipe, in the place of metal ducts, has also proven satisfactory!

We supply all essentials including a 275 gallon fuel storage tank with each and every unit!

Complete details from Dept. A-6.

There is a KAUSTINE Winter Air Conditioner for every type of home





68 1/4

ausline

Modulated Warm Air Furnaces from 65,000 to 270,000 B.T.U. Septic Tanks . . . Pressure Vessels . . . Oil and Gasoline Starage Tanks . . . Truck Tanks . . . Custom Built Fabricated Equipment the Strong Viking Sales Plan
Can Sell More Fans At A

Lower Cost Per Unit!"





says Woody Faison: Enthusiastic Viking Salesman

"My jobbers and dealers have found that the Viking Sales Plan and Co-op advertising system bring them more sales and larger profits, with selling headaches practically eliminated."

"Dealers here are saying that VIKING FANS are made to order for slow summer months."

made to order for slow summer months."

"Kentucky dealers tell me that they can really do a job with Viking Fans during the slow summer months. With the Viking Sales Plan and Co-op advertising to back them up, they've been doing a big profit business during slow summer months. No selling problems with this fan either — it's a swell demonstrator. My dealers keep me jumping with repeat orders!"

PAUL BRUMFIELD, Crone Co., 165 Midland Ave., Lexington, Ky.

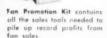


HERE'S WHY
Kentucky Dealers
are sold on
Viking Fans

Unique Viking Vadnit redeemable for \$3 towards local co-op advertising. You get one Vadnit for each fan you buy.



Viking Window Fan Display is a demonstrator that really sells





Do A Quick, Easy Selling Job!

Write For The Unique—Strong Viking Selling Plan and Co-op Advertising System



"I've sold a lot of Viking Fans and I have yet to get a service call-back. These fans are rugged — heavy gauge metal frames, strong bearings and a reinforced cage. No call-backs mean more money per sale in my pocket."

CLAUDE L. WARNECKE, H. J. Frantz Plumbing & Heating Co., Inc., 154 Walnut Street, Lexington, Ky.

"Viking Fans are so versatile that I don't have to worry about losing a sale because I can't meet a customer's requirements. Viking Fans fit any windows and the 2 speed motor meets the cooling requirements of any 4 or 5 room house or apartment."

BOYD NEWKIRK, 138 North Main St., Winchester, Ky.



"Lot of women with kids, living around my store, were putting up with hot, stale-aired houses because they were afraid that the kids would catch colds or mangle their hands with a fan. When I demonstrated the even, draft-free night-air cooling and the heavy, protective cage, they were sold on the spat."

EDWARD MERRINGER, John Merringer's Plbg. Co., 616 Main, Paris, Ky.







CLOG-PROOF NOZZLE **GUARANTEED 10 YEARS**

Match this guarantee if you can! The Winkler Nozzle ends fuel waste permits exact sizing of the burner to the heat requirements of the building



FUEL METER ASSEMBLY **GUARANTEED 3 YEARS**

Another Winkler stand-out. Intimately premixes oil and air—slways meters the same amount of oil regardless of



The Winkler Sales Training Schools are free to all Winkler dealers. Write for details.

Winkler dealers have an unpaid sales force numbering tens of thousands . . . producing a steady flow of extra profits! These salesmen are the people who have bought Winkler Heating Equipment and rec-

burnerhere'd you

Why? Because the outstanding performance of Winkler Automatic Heating Equipment makes genuine friends-eager to spread the good news!

For example, consider the Winkler LP Oil Burner a low pressure unit making phenomenal fuel savings the country over. Next, look at the Winkler line of Furnaces and Boilers-featuring the exclusive Econ-O-Flow design which assures more heat for less money.

And finally, the Winkler Training Institute-free to all Winkler dealers. Here dealers are shown not only how to sell Winkler Heating Products, but also how to install them for maximum comfort and economy.

All of this adds up to satisfied users! A satisfied owner means an enthusiastic booster . . . and boosters mean extra business. In proof, look at Winkler sales -rising steadily year after year.

Better write today for full information.

THE MOST COMPLETE LINE OF FINE HEATING EQUIPMENT IN AMERICA



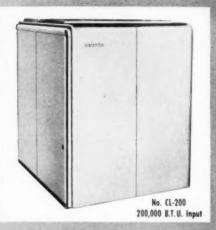
Ask about the Winkler Free Sales Training School

WINKLER

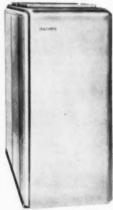
Automatic Heating Equipment

U. S. MACHINE CORPORATION Dept. A-62, Lebanon, Indiana

Beyond Comparison! YEARS AHEAD in Design... Construction!



The MONCRIEF CAST IRON



No. CL-100 100,000 B.T. U. Input

Gas Fired
Heating
Units for
Small Homes
FOR
Large Homes

50,000 to 200,000 B.T. U. Input



Heating Element is Factory Assembled

Analyze — point-by-point the superior design and construction features in Moncrief Cast Iron, gas furnaces.

- ...Round Combustion Chambers, durable and longlived.
- lived. One-piece Radiators with
- clean-out ports.
 ...NO VERTICAL JOINTS in the factory assembled heating element.

Then — put all the points tegether and you have the greatest selling stary ever offered in ges fired, cast iron heating equipment.

From every angle you have everything to autsell any competition — with Moncrief.

So — why not order Moncrief cast iron gas furnaces teday from your Moncrief jebber? They're surprisingly low in cost. Sell Moncrief on your next gas order.

THE HENRY FURNACE COMPANY . Medina, Ohio

HEATING AND AIR CONDITIONING UNITS



FURNACE PIPE AND FITTINGS

CHEVROLET Advance- TRUCKS

Buy on these plain, hard FACTS!



Fact No. 1

COSTS LESS TO BUY

Payload pound for payload pound, a Chevrolet truck lists for less than any other truck with the qualifications to handle your job. As the world's largest manufacturer of trucks, Chevrolet takes advantage of production economies to pass substantial savings on to you!

Fact No. 2

SAVES MONEY ON THE JOB

Chevrolet trucks save you money over the miles with great proved features that cut costs. Valve-in-Head economy, rugged Hypoid rear axles, extra-sturdy channel-type frames and Flexi-Mounted cabs, Ball-Gear Steering, Synchro-Mesh Transmission.

Fact No. 3

RIGHT TRUCK FOR EVERY LOAD

Your first interest in a truck is: "How well will it do the job?" That's where Chevrolet trucks have it, because they're factory-matched to the payload—tires, axles, frame, springs, engine, transmission, brakes. You get as much truck as your job calls for.

Fact No. 4

KEEPS ITS VALUE LONGER

Chevrolet trucks traditionally keep their value longer to bring higher used truck prices, year after year, at trade-in time. That means real, substantial dollar-and-cents savings when you wish to replace your present truck with a new one.

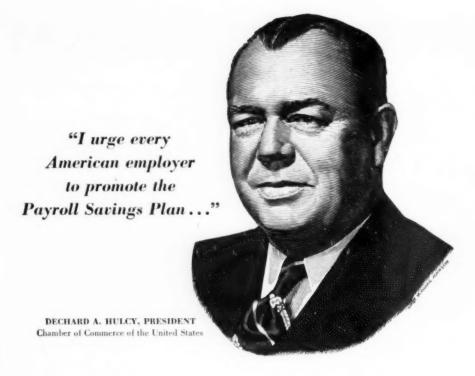
CHEVROLET ADVANCE-DESIGN TRUCK FEATURES -

TWO GREAT VALVE-IN-HEAD ENGINES— Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per lead • POWER-JET CARBU-RETOR—for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH for easy-action engagement • SYNCHRO-MESH TRANSMISSION — for fast, smooth shiffing e HYPOID REAR AXLE—for dependability and long life = TORQUE—ACTION BRAKES—en light-duty models = PROVED DEPENDABLE DOUBLE-ARTICULATED DRAKES—en medium-duty models = TWIN-ACTION REAR BRAKES—on heavy-duty models = DUAL-SMOE PARKING BRAKE—for greater holding ability on heavy-

duty models e CAB SEAT—with dauble-deck springs for complete riding comfort a VENTI-PANES—for improved cab ventilation a WIDE-BASE WHEELS—for increased fire mileage a BALL-TYPE STERNING—for easier hendling a UNIT-DESIGNED BODIES—for greater lead protection a ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.

CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN





"I urge every American employer to promote the Payroll Savings Plan among his employees as a means of building a reservoir of savings."

As President of the Chamber of Commerce of the United States... with literally thousands of contacts throughout industry and commerce... Mr. Huley is uniquely qualified to evaluate the Payroll Savings Plan.

As a business man, Mr. Huley puts his finger on a most important accomplishment of the Payroll Savings Plan: the enormous reservoir of savings, future purchasing power, built up by systematic saving.

Today, millions of Americans hold Series E Defense Bonds totaling \$34.7 Billion. It will surprise many to learn that this figure is \$4.8 Billion greater than on V.J. Day. And the \$34.7 Billion total of outstanding Defense Bonds is mounting as more and more employers recognize the importance of the Payroll Savings Plan. During 1951 there was a sizable increase in the number of men and women saving through Payroll Saving Plans where they work. During the calendar year 1951, 45,500,000 \$25 Series E Bonds were purchased — a gain of 17% over the previous year, 12,000,000 \$50 E Bonds were purchased in the same period, 14% over the previous year, \$25 and \$50 denominations are the bonds bought by Payroll Savers.

Building a reservoir of savings and future purchasing power ... contributing to America's defense effort ... helping to maintain America's economic stability by providing a check on inflationary tendencies, the Payroll Savings Plan is doing a three-way job.

If your company hasn't a Payroll Plan, or if your employee participation is less than 60%, the Savings Bond Division, U. S. Treasury Department will be glad to help you take your place among America's Honor Roll of "Companies on Payroll Savings". Phone, wire or write to Suite 700, Washington Building, Washington, D. C.

The U.S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and



CUTS COST UP TO

DOOR and PARTITION

NO SEE-THRU

• Cut-a-way view shows new auxiliary frame. Quickens installation-makes a smoother appearance.

NEVER BEFORE SUCH A DOOR GRILLE FOR THE MONEY. It's so far ahead in design, construction and performance that it's guaranteed to open your eyes.

Skilled Airfoil designers drew, tested and built it to give architects, contractors and engineers the finest door grille possible. It's made to OUTLAST-OUT PERFORM.

First-it's more rugged. Will withstand heaviest use and abuse for years and years. Second-it's low in cost, competitively priced. Third-it's good looking. Will add beauty every time it is installed. Fourth-louvers are absolutely secure. Do not rattle when door is slammed.

- . HEAVY GAUGE STEEL. REINFORCED ON EITHER SIDE.
- . 73% FREE AREA.
- . ADAPTABLE TO ANY DOOR WIDTH ... MADE TO ANY SIZE.
- . ONE-PIECE FRAME.
- . CUTS DAMAGE AND RE-PLACEMENT COSTS. NO EXPENSIVE CALL BACKS.

GET THE COMPLETE INFORMATION ON THESE AND ALL AIRFOIL GRILLES TODAY





CHECK TYPE OF GRILLE	ON WHICH INFORMATION IS DESIRE
41	- Budanes de autober de

- Return air grilles and ☐ Valume controllers
- Perforated metus arnomental grilles Industrial arities
- Special made-to-order grilles
- TITUS MANUFACTURING CORP., WATERLOO, IOWA RUSH information on new door and partition Grilles.
- Send complete catalog.

Send literature on above checked items.

NAME

ADDRESS



"We don't expect dealers to be magicians"

says Ray Bissell,

Bryant Gas Equipment, Inc., Baltimore, Md.

We may be old-fashioned, but we believe you dealers are in business to make money. Not just to turn over dollars, but to make a legitimate profit on a decent volume of sales. That's one reason we at Bryant do everything possible to protect your profit margin-give you top-quality, dependable products; permit you to save on installation costs; back you with technical assistance when you need it; and finally, help you promote and sell the more profitable jobs. No, we don't expect dealers to be magicians-to keep up a family, and a business, on profitless turnover. If this fits with your thinking, you'll be interested in Bryant's aggressive program for '52. We're going to make money, and help you make money. Your Bryant Distributor will give you the facts. Or write Bryant Heater Division, Dept. 14, Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio.



Bryant Model 26 Gas-Fired Boiler

For all types of hot water heating systems—radiation, convection, baseboard and radiant panel. Nine sizes, with A.G.A. inputs from 67,500 to 315,000 Btu per hour. Approved for all gases. Ruggedly, compactly built. Highly dependable.



AIR CONDITIONING.

WATER HEATING

If your product is here

your motor is here!

DISPOSAL UNITS

DRYERS

IRONERS

WASHERS

STOKERS

BLOWERS

OIL BURNERS

COMPRESSORS

VENTILATING UNITS

BENCH TOOLS

WATER PUMPS

MILKING MACHINES

CREAM SEPARATORS



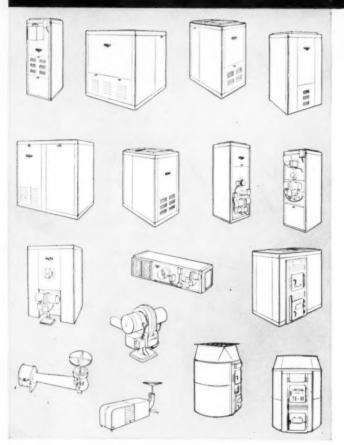
Now, more than ever before in the 35-year history of this fractional horsepower motor, it is advisable for manufacturers to get the Packard proposition. There are definite advantages in standardizing on Packard motors.

Jackard,

Peckard Electric Division, General Motors Corporation Warren, Ohio

DEPENDABLE APPLIANCE MOTORS FOR THIRTY-FIVE YEARS

Dealers who sell this line know they can bank on it...



and on the company behind it!

Dealers who sell Armstrong furnaces to so for many different reasons, but all these reasons add up to one mighty important fact: They make money.

Dealer profit, you know, doesn't build up just because of a full line, beautiful units, efficient operation, ease of installation or any other single thing. It's dependent on all of those things, and many more.

Armstrong's distribution system, for instance, gives Armstrong dealers a big inventory, close at hand, without excessive investment. Armstrong provides dealer promotion materials regularly, and special help for special market situations, whether they are national or regional. Armstrong's consumer magazine advertising carries the Armstrong story into the homes of your prospects. Armstrong works and worries with Armstrong dealers and distributors; their problems are Armstrong's problems.

Yes, Armstrong makes a full line, and a mighty good one. But Armstrong, far beyond that, does the little things which are so big when net profit is calculated.

Your nearby Armstrong distributor has facts, not claims, for you. Ask him. If you don't know him, drop us a card for his name.



Armstrong's two huge plants serve both sides of the continent quickly, economically. A wavehousing distributor, with a complete Armstrong inventory, is within a stone's throw of everywhere. Wherever you are, Armstrong's distribution system is set up to serve you. It's better, quicker, more profitable . . . for you.

Please address Dept. AA at our plant nearest you.

COLUMBUS, DES MOINES,

Warm-Air Furnaces - Gas, Oil, Coal - A Complete Line

OHIO

IOWA

FAMUUS for long, trouble free SERVICE Delco motors have a record for dependability that's unsurpassed by

any other motors made.

Manufacturers of heating and ventilating equipment have learned from experience that Delco motors deliver continuous trouble-free service far longer than ordinary motors.

> Critical selection of materials and careful dynamic balance-plus special features such as uniflow pressure-cast rotor conductors, steel backed tin babbitt sleeve bearings or ball bearings, varnish-dipped and baked motor windings-make Delco motors the

> > So check on Delco motors now, You'll find the motors you need, in sizes from fractional to 100 h.p., in the great Delco line. For information on motors for any application, address Delco Products, Dayton, Ohio, or our nearest sales office.

MOTORS FOR OIL BURNERS Delco flange-mounted motors, split-phase, 50- and 60-cycle, constant speed—1/4- to 1/4-horse-power ratings. motors you want for your product.



MOTORS FOR BLOWERS

Delco resilient-mounted motors, split-phase and capacitor-start types, single- and two-speed designs—16- to 36-horsepower

DELCO PRODUCTS

BEST RUNNING MATE YOUR PRODUCT

SALES OFFICES:

ATLANTA - CHICAGO - CINCINNATI - CLEVELAND - BALLAS - DETROIT - HARTFORD - PHILADELPHIA - ST. LOUIS - SAN FRANCISCO



More and more warm air contractors are finding that Ohio Valley Furnace Fittings save both time and money on the job. The quick, easy fit means fewer man hours per installation—and that means more profit. All Ohio Valley Furnace Fittings are made from prime quality, full gauge, galvanized steel—especially selected from the best mill production for quality furnace fittings. To get it right the first time—always use Ohio Valley Furnace Fittings.

FAST and RIGHT!

DO IT BETTER FASTER — WITH OHIO VALLEY CARRIED IN STOCK BY LEADING WHOLESALERS



Ohio Valley Hardware & Roofing Company METAL MANUFACTURING DIVISION, EVANSVILLE, IND.

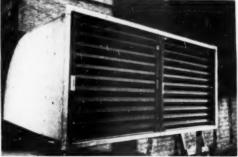
Coupon on page 105

fuel supply, 110 volt line, and the thermostat cable.

The front panels are readily removable for easy access to the fully enclosed burner, blower controls and cleanout ports. AA10

Exhaust Odor Control

W. B. CONNOR ENGINEERING CORP., Danbury, Conn., is marketing activated carbon filters that can be used to remove or reduce fumes in air exhausted from kitchens which otherwise might become the cause of considerable



annoyance to neighbors, particularly in warm weather when windows are open and air conditioners are in use. Combined with adequate grease removal and air dilution these units are proving an effective answer to this nuisance.

AA11

New Precision Tool

LANDER & ABBOTT, La Crescenta, Calif., has introduced a hand tool for on-the-job mitering of metals with the



ease and precision of stationary machines. Cuts are clean and accurate.

Various type dies are available, all of hardened and precision ground tool steel for notching and slotting of non-hardened steel up to 1/32 in. and copper and aluminum up to 1/16 in. Snap-in feature makes dies instantly interchangeable.

The new tool is useful for working with moulding, sheet metal, fiberboard, plastics, and masonite. AA12



The A-10 Worthy Companion to the DU-ALL HALCO AO-12 and AG-12

A 2 Package Unit For 7 WAY ASSEMBLY

It's efficient! It's amazingly compact! The 10" blower compartment in the basement low-boy assembly above, gives you an idea of its size ... yet the Bonnet delivery is 80,000 B.T.U. It is NOW available for oil firing. For the smaller home it is the final answer to efficient, low-cost heating, and the answer to your inventory problems. Stock ONE furnace for ALL 7 installation methods. The AO-10 is shipped assembled in a two package unit ... the furnace in one and the blower in the other ... ready to install.

Builders of quality Furnaces Since 1890

Install it 7 WAYS*

- 1. As an Oil-Fired Hi-Boy
- 2. As a Gas-Fired Hi-Boy
- 3. As an Oil-Fired Counter-Flow
- 4. As a Gas-Fired Counter-Flow
- 5. As an Oil-Fired Basement Low-Boy
- 6. As a Gas-Fired Basement Low-Boy
- 7. As an Oil-Fired Suspended Unit

Why Stock 7 Different Furnaces When ONE Will Do 7 JOBS?

Write Us Today!

This new AO-10 ail-fired Halco DU-ALL is available NOW! The gas-fired AG-10 model will be available as soon as AGA Tests are completed. These models will be in great demand. ORDER YOURS NOW!

HALL-NEAL FURNACE CO.

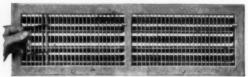
DIRECTED AIR FLOW at any angle with



321-A HMV

Rear View Showing "HMV" Valver

Every grille bar adjustable individually—before or after installation



321-A HMV Tondem

Any direction of air flow—right, left, up, down and any combination—is easily obtained with "Fabrikated" Style No. 321-A HMV air conditioning registers, for residence or commercial installations, on sidewalls or ceiling. The face bars are adjustable to right or left; valves on the back are adjustable to direct the air flow up or down; valves may also be fully closed, and are connected to open or close in unison.



Metal and Neoprene Washer

FABRICATED PRODUCTS Co. INC., W. Newton, Pa., introduces a new line of laminated metal and neoprene composition washers.

These fabricated washers have been bonded by a special pressure heat process and are offered in 18 gauge stainless steel, 20 gauge galvanized steel, and other metals in standard sizes. They can also be obtained in any size, type, or form according to specifications.

They are recommended as a prevention against vibration and noise, and as a protection of enamel surfaces against crazing. Samples will be sent on request. AA13

Sure Grip Plier

LANE SURE-GRIP TOOL Co., Chicago, has introduced an improved plier. Among the improvements is lengthening of the jaws, generally referred to as deepening the throat. Pipe wrench teeth have been incorporated in the upper and lower jaw, giving the plier a biting-in effect and positive gripping power on round or flat surfaces. It can be opened and closed with one hand. AA14

New Dual Gas Valve

A NEW DEVELOPMENT combining for the first time modulating and snap action gas valves in one unit to provide fully automatic operation of space heaters, wall heaters and floor furnaces has been announced by the

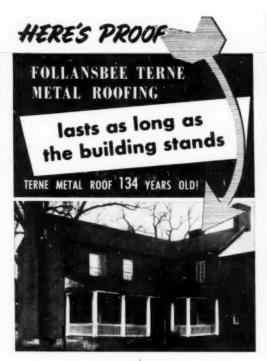


appliance division of MINNEAPOLIS-HONEYWELL REGU-

The device includes thermostat and valve action in a single fixture installed in the gas supply line.

By controlling the flow of gas to the burner it eliminates having to turn the heater on and off manually and also prevents overheating.

The new control is basically two valves built into one casting with a thermostat governing the automatic operation. In effect, the bi-valve action gives the user the



The Kent estate, Christiansburg, Va., built in 1818, is still protected by the same Terne Metal roof installed 134 years ago. Says H. B. Smith, Christiansburg roofer who replaced a portion of the roof last year:

"... all I had to remove was half an ell on both sides. The rest of the ell and the main roof is still on and still does not leak. I can show you quite a few homes around here with Terne roofs which have been on for over 75 years and are still giving good service."

The Kent estate is an outstanding example of the lifetime-plus durability of Terne Metal Roofing. That's why sheet metal men like Follanshee Terne. It is easy to apply . . . weathertight and fireproof . . . can be easily painted any color. It meets the needs of every home owner, gives lasting customer satisfaction, and gives you bigger profits. It's the ideal weathersealing material, too.

As a sheet metal man it will pay you to promote and sell your type of roofing—Follansbee Seamless Terne Metal. To help you estimate roof coverage of Follansbee Terne Metal, write for the free Pocket Estimator.

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

POLISHED BLUE SHEETS AND STRIP SEAMLESS TERNE ROLL ROOFING
COLD ROLLED STRIP



Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee. Sales Agents — Chicago, Indianapolis, Kansas City, Nashville, Los Angeles, San Francisco, Seattle; Toronto and Montreal, Canada. Mills—Follansbee, West Virginia

FOLLANSSEE METAL WAREHOUSES Firtsburgh, Pa. Rachester, N.Y. Fairfield, Conn

NEW smoothness... NEW efficiency in powder-actuated fastening... ANOTHER RAMSET Designed **BY Operators FOR Operators** SEE THESE **NEW FEATURES:** I-PIECE TOOL, for faster loading TRIGGER ACTION. for easy operation PORTED BARREL, to reduce spall ANGLE-FIRE CONTROL. for straight penetration VISI-CHEK BUTTON, for quick inspection Plus exclusive, proved-in-use ROTO-SET SAFETY SHIELD, for

Faster, lighter, easier handled, the new Rambet Jobanster sets a record pace for steel and concrete fastenings. Properly trained workmen quickly become skilled operators because of smooth, simple, natural motions of loading, placing, firing. Positive controls bring improved accuracy and efficiency... and still lower fastening costs. Ask your dealer for demonstration of how Rambet's years of pioneering have made the new Jobanster the proved-inperformance leader.

accurate positioning

Ramset Fasteners, Inc.

ASK FOR DEMONSTRATION TODAY!

Product Patent No. 2470117, Other Patents Pending.





ALUMINIZED STEEL

construction

Chosen by Engineering Tests for our Domestic line of Draft Regulators because of its superior heat and corrosionresistant qualities.





WALKER offers 2 types of Draft Regulators with Tee Joints featuring the new friction-free Box Hinge.

4 348 Economy Too Joint

. . . COMMERCIAL

(Ball Bearing) Built to meet toughest conditions. Size 16" to 36".



Millions of heaters require Draft Regulator replacements. You can take advantage of this enormous market or improve the performance of installations you make by using Walker Regulators. Pipe sizes 3" to 36"

5 Good Reasons why you should make WALKER FUEL SAVERS standard equipment.

- They are tops in adjustment and sensitiv-
- ity. 2 - They save on every type of fuel.
- Easily installed and neat in appearance.
- 4 The new Box Hinge insures long life and positive action.
- 5 Because of enormous volume, Walker prices are especially attrac-

WRITE FOR PRICES

WALKER MFG. SALES CORP.

1715 Penn St. St. Joseph, Missouri





Coupon on page 105

equivalent of two different size burners which results in AA15 fuel savings.

Low Cost Gravity Furnace

DELTA HEATING CORP., Trenton, N. J., has developed a new low cost, gravity warm air furnace, oil or gas fired, which is now in volume production. Considerably less expensive than the model it replaced, this furnace was designed primarily for low cost housing. It is factory assembled with a full sized bottom plate to prevent air leaks when installed on an uneven floor.

New Type Vent Cap

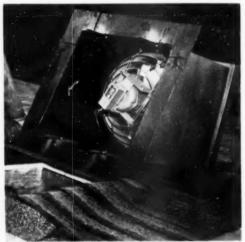
RYNIKER STEEL PRODUCTS Co., Billings, Mont., is marketing a new type vent cap which has been field tested under all conditions for the past two years.

It is all aluminum and was designed for use with gas fired equipment; however, tests conducted with oil and other fuels have shown that the cap can be used with all fuels where the temperature of the vent cap is less than 800 deg F.

Wind striking from any direction has to stratify in going through the cap fins causing a Venturi effect in direct proportion to the velocity of the wind.

Chimney Style Attic Fan

An unusual new chimney style attic fan which saves valuable attic space and eliminates the need for large ceiling louvers or exterior gable louvers was recently placed on the market by the LOREN COOK Co., Berea, Ohio.



The chimney style attic fan is a package unit consisting of a direct drive fan housed in an all welded weatherproof steel dummy chimney.

The self-draining chimney housing is vinylite coated to assure long life under any climatic conditions. The interior is also muffle coated for extremely quiet operation. The chimney may be cut on the job to fit any degree of roof slope, or the desired pitch may be ordered



"CHRYSLER BUILDING EAST"
Architect:
Reinhard, Hofmeister & Walquist.
General Contractor:
Turner Construction Co.
Sheet Metal Contractor:
Beniqmin Riesner, Inc.



FOR THE LATEST AND FINEST TECHNIQUE

in Copper Base Flashing

Install The New Chase Copper Base Flashing Expansion Joint

This new patented Copper Joint permits movement of copper base flashings due to expansion and contraction without danger of buckling or cracking.

Sheet metal contractors and architects realize that with this Chase Expansion Joint, copper base flashing becomes even more efficient and economical for use at the juncture of flat built-up roof and masonry wall.

The new Chase Copper Base Flashing Expansion Joint is made of 18-ounce copper. Open seams on the edges of the joint permit fast, easy interlocking and soldering to the adjoining lengths of base flashing. A "cap box" is supplied with each Expansion Joint for attachment to the cap flashing and a completely watertight job.



WATERBURY 20, CONNECTICUT . SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Hendquarters for Brass & Copper

Albany?	Chicago	Dever?	Kansas City Mu.	New Drisons	Printerph	San Francisco
Atlanta	Cincinnati	Betrait	Los Angeles	New Drisons	Providence	Seattle
Baltmore	Cleveland	Neuston?	Minacapeles	New York	Rechester?	Waterbury
Beston	Dallas	Inflatentis	Minacapeles	Philadelphia	St. Laws	(1 sales affice)



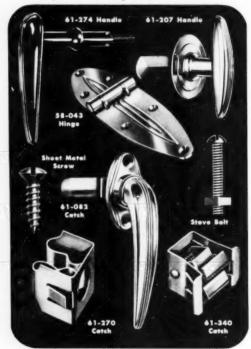
FREE FOLDERS: You will also want to know about the new Chase Onepiece Thru-Wall Copper Flashing and Cap Flashing Receiver. Write for folders on both these new developments in copper flashing.

	per Co., Dept. AA-652
Waterbury 20, Can	n.
Please send me ye	our free folders
	ie Flashing Expansion Joint, ne-Piece Thru-Wall Copper Flashin
NAME	
POSITION	
FIRM	
FIRM STREET.	

NATIONAL LOCK HARDWARE FOR METAL APPLICATIONS

for use on stokers • oil burners

- air conditioning equipment
- gas heating units humidifiers
- · space heating units



Get All Your Hardware From 1 Dependable Source

One-source buying from NATIONAL LOCK, will simplify purchasing, simplify control and lower shipping costs... while assuring you of uniform high quality. NATIONAL LOCK offers a wide selection and prompt delivery in step with your needs.



Coupon on page 105

cut at factory. It is self-flashing, and can be painted to match any desired color. Dimensions are comparable to those of a standard chimney.

Utilizing the principle that the entire attic space can be used as a plenum, the high speed fan creates a vacuum throughout the attic area. This permits the use of very small ceiling louvers—in more than one location if desired—and maintains a pleasant breeze in the living area of the house.

Galvanized louvers are built as an integral part of the fan assembly.

AA18

New Wall Furnace

A LOW COST CENTRAL heating plant with an output of 57,500 Btuh, adaptable for houses with slab floors or low foundations, and incorporating several improvements over previous furnaces of this type, is being marketed by Kresky Manufacturing Co., Petaluma, Calif.

Continuous air circulation is accomplished by means of a high volume fan coupled to a variable speed automatic control. With this combination, a large volume flow of air at a low temperature rise is maintained, eliminating drafts, hot zones and cold floors,

Exterior panels are cool to the touch at all times, because the large volume of air passing through the furnace is an efficient insulator.

Of prime consideration to builders is the fact that the furnace need not be installed until the house is completed. A simple framing job, provision for fuel and electric lines, and chimney or flue is all that is needed before actual installation of the furnace—which takes about one hour.

Specification folders are available. AA19

Horizontal Discharge Attic Fan

A NEW 36 IN. horizontal discharge attic fan has been introduced by the VIKING AIR CONDITIONING CORP., Cleveland. New engineering features permit installation by one man.

Instead of a bulky assembled package unit, the new fan comes in several basic components; the Venturi cone is in two sections, and the motor is easily detached from blade and power assembly to facilitate carrying to the attic.

The inlet cone nails directly over the hole framing, eliminating felt seals, canvas boots and complicated framing. Motor and blade unit is floated on heavy rubber cushions to isolate vibration from the rest of the fan and the house.

By breaking the fan into components it can be shipped in half the usual bulk. This means the fan can be installed in tight quarters, practically under the eaves.

Four 36 in. blades operating at 350 rpm provide enough air delivery for a complete change of air every one or two minutes in homes of 9,000 to 18,000 cubic feet in volume.

Attractive spring tension, aluminum shutters and a timer are supplied for use with the fan. AA20

NEW LITERATURE

Coupon on page 105

Selfsticking Labels

W. H. BRADY CO., Chippewa Falls, Wis. A 50 page product catalog. Products covered includes wire markers, pipe markers, safety signs, reflective signs, masks and stencils, and printed roll tape.

Each product section is tabbed separately. Under wire markers are included 2,500 selfsticking labels in numbers, letters, and symbols in black and white as well as colors, and hi-heat resistant labels. Printed roll tapes, and pre-cut masks and stencils are found in another section of the catalog. Masks are available in everything from a drafting tape on dispenser cards, to plastic electrical or fiberglas for special applications.

For plant safety and identification the section on pipe markers contains a wide selection of markers and reflective signs designed to save lives.

AA 269

Air Diffusers and Accessories

W. B. CONNOR ENGINEERING CORP., New York, has published a 32 page bulletin with a dual purpose, to display the company's complete line of air diffusers and accessories, and provide the designing engineer with performance charts and technical installation data.

It also contains formulas to determine terminal velocities other than standard, expanded selection curves, air entrainment ratios, static pressure and resistance charts, and simplified balancing and testing data. AA 270

History of A Furnace

MORRISON STEEL PRODUCTS, INC., Buffalo, N. Y. The Story of Morrison, a folder that presents the company's products in pictures and words.

It contains a brief history of this 39 year old firm, the products it manufactures, the industries that it serves, and the problems that its plant and personnel can solve.

AA 271

Brazing Techniques

A new Brazing Manual has been published by ALL-STATE WELDING ALLOYS CO. INC., White Plains, N. Y.

Practical aspects of brazing, such as are found in air conditioning, heating, and other mechanical trades, are fully covered. Diagrams and illustrations simplify a number of points in the joining operation and show how sound joints can be made.

The new manual contains data helpful to all who have need of information for brazing assemblies of copper, brass, steel, aluminum, and cast iron.

AA 272

Prefabricated Fittings

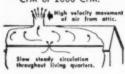
CORBMAN BROS., Philadelphia, Pa. has published a 32 page catalog of warm air fittings and accessories.

Consideration has been given to the manufacturers' designs for furnaces that meet the many existing housing





Direct drive motor, ball bearing equipped, totally enclosed, rubber mounted. Two speeds. 3300 CFM or 2000 CFM.





Side view shows automatic dampers. Unit has devicte drains.

EASY TO INSTALL! LOW COST! THIS NEW, GOOD LOOKING, "CHIMNEY STYLE" ATTIC FAN HAS 10 ADVANTAGES OVER ORDINARY FANS!

- Steady air exhaust regardless of outside wind pressure.
- 2. No large, costly exterior louvers needed.
- 3. Saves valuable attic space.
- 4. Small, attractive ceiling louvers used. (lower cost)
- 5. Quiet! Fan is separated from living area by attic.
- 6. Good looking on houses or motels.
- Lightweight unit can be placed anywhere on roof

 locate ceiling louvers in any room, or rooms.
- Can be used effectively to draw humidity from walls in Spring in colder climates by closing ceiling louvers.
- 9. Costs less to install than other attic fans.
- Easy to install. Fits between standard roof rafters; pitch can be cut on the job or factory cut. Self-flashing.

Write teday for new booklet. Dealerships still epon. The Loren Cook Company, 664 Front Street, Berea, Ohio.



Coupon on page 105

conditions. With this in mind the fittings were designed, engineered, and perfected to require little installation effort. Standard fittings for almost any warm air heating installation are listed.

AA 273

Flexible Ducting

AMERICAN VENTILATING HOSE CO., New York, N. Y., has issued a four page, two color bulletin describing the installation of strong, light weight, flexible ducting for use in plant services such as air conditioning, ventilation, dust and fume control. Application of the ducting to plant services and equipment is illustrated with interesting on the spot pictures.

AA 274

Index of Films and Literature for Metalworkers

REYNOLDS METALS CO., Louisville, Ky., has published a new index listing technical literature and films available to the metalworking industry.

Technical literature is listed under five different headings, covering: design, fabrication, application, products, and general information, all dealing with the most effective uses of aluminum.

Seven motion pictures especially prepared for the metalworking field are listed. All are on 16 millimeter film, most of them in sound and color. AA 275

How to Solder

FEDERATED METALS DIV., American Smelting and Refining Co., New York, N. Y., has published a 16 page booklet on the fundamentals of soldering. It contains simple instructions and illustrations aimed at making soldering easier.

Every step from the choice of alloy through the application of solder is explained. How To Solder is designed to provide the reader with practical information. Free copies are available.

AA 276

Grilles and Ventilating Registers

AUER REGISTER CO., Cleveland, has published a catalog which describes, illustrates, and gives prices of the company's complete line of registers and grilles for heating, air conditioning, and ventilating.

The new register catalog includes several newly developed models, as well as changes and improvements in previous models.

AA 277

Exhaust Hood Designs

A 24 page Manual of Exhaust Hood Design featuring engineering data on dust control systems for the metal working industries has been published by AMERICAN AIR FILTER CO. INC., Louisville, Ky.

The manual illustrates and discusses the design of exhaust hoods for many metalworking operations.

In addition to 61 photographs of actual dust control installations showing various methods of hooding dust sources, the booklet also contains tables of exhaust requirements, plus information on dust concentrations, weights of collected material and other data. AA 278

Radiant Oil Burner

SWIRLING OIL BURNER MANUFACTURING CORP., Long Island City, N. Y., has made available a four page folder for their "swirling flame" oil burner. It discusses operating features of the burner which the manufacturer says has been designed to make effective use of radiant rays of the combustion zone. The gun and rotary models eliminate combustion chambers entirely.

AA 279

Furnace Vacuum Cleaner

PULLMAN SALES CORP., Boston, has issued a leaflet describing its furnace and boiler vacuum cleaner and power blower. The leaflet gives detailed specifications of the equipment and illustrates 10 accessories. Prices of accessories and also of replacement parts are listed.

Long Span Concrete Slabs

FLEXICORE CO. INC., Dayton, Ohio, is making available copies of their 1952 catalog on prestressed concrete floor and roof slabs.

Features of the catalogue include: diagrams showing how concrete slabs are used with all types of construction; a simplified load chart; an illustrated explanation of why prestressed slabs permit heavier loads on long clear spans; and new ways to install heating systems.

Atmospheric Tests of Nailed Sheet Metal

Atmospheric Exposure Tests of Nailed Sheet Metal Building Materials by Theodore H. Orem has been issued by the National Bureau of Standards.

To determine the resistance of nailed sheet metal building materials to atmospheric corrosion and to point out how improper installation practices can cause serious corrosion, NBS initiated special tests of such materials. This report describes the tests and gives important conclusions and recommendations concerning the installation of sheet metal.

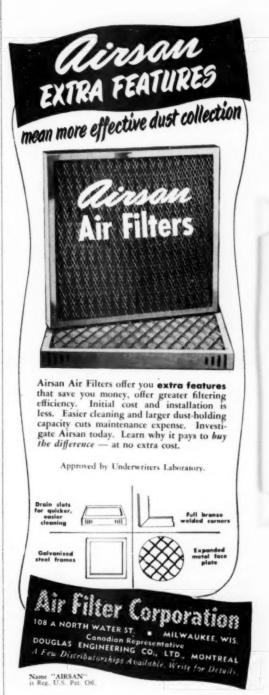
Premature deterioration of a material usually results from contacts with dissimilar metallic materials of construction or from proximity to nonmetallic materials. It is often impractical to avoid using materials that may accelerate corrosion of one of two materials when they are brought into intimate contact. It is possible, however, to insulate the materials from each other by means of paints, mastics, waterproof papers, felts, etc., to minimize corrosion.

Copies of Report 128 may be obtained from the Government Printing Office, Washington 25, D. C. for 20c each. AA 282

Catalog of Resistance Welding Materials

WEIGER WEED & CO., Detroit, has published a 32-page illustrated catalog of resistance welding materials.

Nearly 700 different styles and sizes of resistance





State

Coupon on page 105

welding electrodes are listed, including the new Kaptrode type electrodes, designed to conserve copper. Numerous additions have been made to the line of cold-formed offset electrodes, irregular and gun welder tips.

The catalog also lists a large number of water-cooled holders, both ejector and non-ejector type, both straight and offset.

AA 283

Building Materials Reference Manual

A new reference manual produced by PHILIP CAREY MANUFACTURING CO., Cincinnati, contains a complete listing of 800 building materials and industrial products obtained from asbestos, asphalt or magnesia. Carey manufactures all types of roofings, insulations, asbestos boards, ducts, and sidings.

The manual shows Army, Navy, MIL, Federal, ASTM, and other specifications, plus their corresponding product. The manufacturer indicates whether or not the products meet required specifications. All information is cross-indexed to provide efficient reference.

AA 281

Industrial Dust Control Bulletin

PANGBORN CORP., Hagerstown, Md., offers a 28 page bulletin entitled, The Control of Industrial Dust. The book describes dust control and its many applications. Case histories of users of the equipment are documented with photographs and performance data indicating savings achieved through the installation of dust control equipment.

Featured in the booklet is the CH system of control which utilizes cloth type filters for the collection of finely divided dry dusts. All elements of the system are described and illustrated, with diagrams showing how the entire system operates.

AA 285

Pocket Size Heating Equipment Selector

A pocket size slide rule has been introduced by the HEATING & APPLIANCE DIV. of EVANS PRODUCTS CO., Plymouth, Mich.

The new slide rule, which is based on heat loss calculations, can indicate in less than five seconds the size and capacity home heater required for the average house. It is calibrated to cover four U. S. climate zones and is being used by salesmen as a sales aid.

Reverse side of the calculator carries pictures and brief specifications on gas fired and oil fired home heaters, floor furnaces, and water heaters. AA 286

Selling Aid for Oil Burner Dealers

A new selling aid designed to help oil burner dealers sell more replacement nozzles, has been published by DELAVAN MANUFACTURING CO., Des Moines, Iowa.

The illustrated leaflet tells a consumer why and how he can save money and get better burner performance by installing a new nozzle at regular intervals.

The leaflet is directed to Mrs. and Mr. Home Owner and can be used as a statement enclosure or presented by

Coupon on page 105

the serviceman at the time he is making a call. A supply of these leaflets can be obtained by any oil burner dealer without cost.

AA 287

Ventilating Catalog

A condensed folder listing its ventilating fans has been issued by SCHWITZER-CUMMINGS CO., Indianapolis, Ind.

The folder contains photographs of the company's attic ventilators, window fans, portable fans, and blowers. Air delivery charts and dimensions for the various models are included.

AA 288

Gas Burner Catalog

BARBER GAS BURNER CO., Cleveland, Ohio, announces its new complete gas burner catalog. The book illustrates and describes the company's entire line of appliance burners, commercial and industrial burners, conversion burners, and controls, for natural, manufactured, mixed and LP gas. Free copies are available to qualified dealers and distributors.

AA 289

Welding Non Ferrous Metals Manual

JOHN WILEY & SONS INC., New York, N. Y., announces the publication of a book on Welding of Non-Ferrous Metals by E. B. West, technical director of the Aluminum Development Association. This is a clear, practical book which tells not only how to weld non-ferrous metals but also gives the reasons why certain procedures should be followed.

Reliable basic information on the application of various welding processes to aluminum, magnesium, copper, nickel, lead, zinc and their alloys as well as precious metals is covered. There are also chapters on fusion, resistance, and pressure welding; and on the welding of low and of high melting point metals.

Every item of technical information is built on a sound metallurgical foundation and perfect realization of the fundamentals of the science. The manual is profusely illustrated with photographs, diagrams and tables.

Two major sections of the book go into a variety of techniques that have been developed for producing good welds on aluminum, copper and their alloys.

AA 290

Installation Manual for Duct Baseboard Heating

VECTAIRE MANUFACTURING co., Melrose, Mass., has issued a manual of technical information for installing their forced warm air baseboard heating system.

The manual contains extensive Btu charts and installation instructions for use of 4 in. and of 5 in. ducts, and also procedures for installing before construction or after plastering.

A number of installation problems with solutions are included as well as a list of helpful suggestions for the installator and heating contractor.

AA 291



AGAIN IN 1952!



COMPLETE LINE OF FURNACES ...

READY FOR

IMMEDIATE DELIVERY



HI-BOY

The new winter air conditioning furnace is completely assembled. Made of 12 gauge Steel to prevent rusting. Cold air return on right or left side. With Minneapolis or Perfex Controls. Precast Combustion Chamber. Size: 23 x 35 x 60. Capacity: 70,000 B.T.U.'s and 106,000 B.T.U.'s

LOW-BOY

The Lowboy is engineered for maximum heating efficiency at minimum cost. Gas-tight heat exchanger is made from heavy 12-gauge steel. Completely factory assembled. Precast chamber. Complete line from 70,000 to 1,000,000 B.T.U.'s.



COUNTER-FLOW

For homes with Crawl Space, Radiant Heat or Perimeter Warm Air Heating, 70,000 or 106,000 B.T.U.'s. Made of 12gauge steel construction.

SUSPENDED or LAY-DOWN





Homes. Completely assembled and equipped with QUIET AUTOMATIC OIL BURNER. B,T.U. Ratings: 75,000 to 240,000 B.T.U. capacities.

All furnaces equipped with world famous flanged
QUIET AUTOMATIC OIL BURNERS
WRITE FOR PRICES AND FULL DETAILS

QUIET AUTOMATIC BURNER CORP.

33-33 BLOOMFIELD AVE. Near Broadway NEWARK 4, NEW JERSEY

Washington Letter -

(From page 30)

make drastic cuts in Government personnel, and eliminate a number of Federal agencies. From this sketchy picture of Senator Taft it should be clear that he probably reflects the thought of the greatest number of moderate Americans. Most of the people, especially business people, are convinced we can't just cut away all the things and all the innovations we consider excesses and surplusses. Most business people realize that whatever is done to contradict our swollen politico-economy must be done temperately and gradually, if we would avoid a world debacle. It is probable that Senator Taft more nearly, in his thinking and in his purposes, represents the average sound, temperate citizen than any other candidate. Taft is brilliant; he is utterly honest, and personally a kindly, friendly, upright gentleman in the best sense of the word. But he is neither colorful nor emotionally appealing. He is too much like the average decent business man of affairs to stir the imagination of the voter. It is for this reason that he is the man who is probably the best rounded, and best equipped citizen to take over in these perilous times.

Eisenhower is anomalous, it is really genuinely difficult to determine his formal political affiliation. His ideas about public affairs and the nation's problems are conventionally upright. But it should be understood that Eisenhower essentially is a front-man. This correspondent has known him very casually ever since he was a Major in the arm-chair brigade in Washington. He is one of those soldiers who either, personally or through distaff influences, have managed to keep in the whirl of Washington where preferment is easy. It is fair to say that he always has been a good front man. The Army needs those officers. They go on the Hill, and by the influence of their pleasant personalities, get difficult appropriations and other favors for the Army. Washington thinks that Eisenhower was made the Commanding General in Europe during the Second World War because he could adequately mix with the prime ministers, the kings, the queens, and all the glittering brass whose good will was imperative. Omar Bradley is regarded as the real military general; and Patton as the flashing genius of action. Eisenhower, is an exceedingly pleasant and impressive gentleman, with a dignity that is not pompous; and an extraordinarily good mixer. With such qualifications, he has a tremendous appeal to the biggest business of the United States, and the rest of the world. It is no secret that he was chosen as the head of Columbia University by big business, and that this choice was designed to put him favorably in the public mind for the nomination as President. At that time it probably didn't matter whether he would be called Democrat, New Dealer or Republican. The main thing was to make him ready so the people would give him the job. It is generally supposed, with considerable reason, that Watson of the International Business Machine Corporation, has devoted-

(Please turn to page 135)

Washington Letter -

(From page 131)

ly spent himself and his friends on this project ever since he saw the apparent success of Eisenhower in Europe. Incidentally, it is interesting to note that for the past two or three years Eisenhower's friends in Kansas have tried to raise a fund of \$100,000 to launch an Eisenhower Foundation, and have assembled so pitifully little that it embarrasses them when it is mentioned. Some of the present Eisenhower popularity, undoubtedly, is real; but most of it, undoubtedly, is synthetic. They tell us here, in Washington, that the Eisenhower organization in the Capital has more money to spend than is available to some of the other candidates for their entire national campaign. Also, it is easy for you understand, that the extraordinary vote in New Hampshire and in Massachusetts, and elsewhere, could not have been so blindingly overwhelming unless somebody spent money like water. All these things have a bearing on the way Eisenhower will confront the problems that will beset the next President. One thing is certain, the public itself will learn only a minimum of how things are done, if Eisenhower is President. It goes against his grain, as a soldier, to do things with the public looking over his shoulder. You get a reasonable forecast by the way he handles the reporters in Europe. Their questions must be carefully submitted. Most of his contact with them is through his Aides. There is little doubt, if he becomes President, he will handle his public relations much as Hoover handled the business during his incumbency. In those days the reporters were tolerated rather than welcome. All their questions had to be submitted, in writing, prior to the so-called press conference. There is little doubt an Eisenhower Administration would be the biggest of big business administrations rather than what might be called a Republican Administration. And who is to say that this may not be an answer to some of our troubles in the light of the wildly fantastic thing that we have here under present conditions. Finally, there is some illumination in the fact that Eisenhower definitely has not been successful in building up an international army in Europe. It is still wholly conversation, on paper, with Europe lukewarm, sore about our tariffs. and because we are utilizing Point Four to build up an extraordinary preferential for our exports.

There are other substantial candidates for the Republican nominations but at this time none seem to have sufficient backing to offer any real competition to the two men discussed herein. There is, however, a possibility of a stalemate between the two groups sponsoring these men and someone not even being seriously considered at this time may be the compromise Republican candidate.

THE APPOINTMENT of T. S. House and Co., Cleveland, Ohio, as sales representative for the Mor-Sun Furnace Division, Morrison Steel Products, Inc., Buffalo, was announced by John K. Farrar, acting sales manager. The territory covered by T. H. House and Co., is Ohio and northern Kentucky.

PATHWAY TO PROFITS with

WALSH REFRACTORIES
FOR THE DOMESTIC
HEATING INDUSTRY





CHAMBERS

Walsh-Made PeTeCo Precast Interlocking Combustion Chambers assure complete burning of oil . . . full efficiency. Greater profits on each installation . . . bigger fuel savings for your customers . . . are the extras you get in Walsh products for the domestic heating industry. On every count . . . from unexcelled manufacturing facilities to long experience, careful selection of raw materials and modern production methods, Walshmade products assure you and your customers of unvarying high quality and dependability.



BAFFLES

Tripod type precast baffles with burnt refractory legs. Saves fuel. Reduces stock temperatures. WALSH H & B CASTABLE

Money, time and labor saving "mix-and-pour" refractory. In 50 lb. and 100 lb. moisture-proof bass.

WALSH PRODUCTS INCLUDE:

Fire Brick • Furnace Liners • Burnt Combustion Chamber Tile Plastic Furnace Lining • Castables • Airsetting Cements Asbestos Furnace Cement • Insulating Fire Brick and Cement Insulating Cement Fill

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ROLLING TYPE HINGE PIN means no friction, no binding, no need for oiling, no fear of corrosion. Off-Center Gate Mounting lets draft operate on a greater effective area.





EXTENDED HOUSING

places gate well outside the flow of fouling soot and gases. Warping or binding of gate are eliminated assuring full sensi-



SIDE WINGS mean greater accuracy as they allow the area of the opening through the control to increase uniformly. Gate is shaped to lit closely to wings.

it's a field someone's been fooled



- Made of Heavy Materials Longer Lasting.
- ed at Factory -More Accuracy.
- Saves Fuel.
- 4. Rocker Type Fulcrum -No Frietion.
- S. No Warping, Clogging Ma Service Calls.
- 6. Free Smoke Passage No Sooting Up.

The Draft Control that's

advertised in BETTER HOMES & GARDENS CONTROL DIVISION & CO. MENDOTA ILL AFFILIATES: CONCO MATERIALS HANDLING DIV

INDUSTRY ITEMS

PROF. F. W. HUTCHINSON, University of California faculty member and internationally known authority on heating and air conditioning, has been retained by Minneapolis-Honeywell Regulator Company as a consultant, according to John E. Haines, vice president of the company's commercial controls division.

Prof. Hutchinson will conduct research in the control of heating and air conditioning systems. His consulting studies have included such fields as comfort and health requirements in crew and passenger spaces, temperatures, humidity and ventilation requirements.



"BACK-TO-SCHOOL-DAYS" for the sales organization of the Viking Air Conditioning Corp. at the Cleveland plant.

Keynote of the meeting was the field of air movement and its relation to industrial and domestic applications. New products, new manufacturing facilities and greater sales effort was the classroom theme.

One new product demonstrated was a 36 in. vertical discharge residential attic fan with 18,000 cfm delivery.

JACKSON & CHURCH Co., Saginaw, Mich., has appointed Paul Deuble and R. P. Jones representatives of two reorganized districts.

Mr. Deuble will represent the company's complete line of suspension and floor model furnaces in Ohio and bordering states. His headquarters will be at Oberlin, Ohio.

Mr. Jones will represent the company in Western Michigan, with offices at Grand Rapids,

E. J. HOPPE has been appointed sales representative for International Heater Co., Utica, N. Y. He will handle the company's complete line of furnaces in eastern Ohio, western Pennsylvania and West Virginia. Mr. Hoppe was formerly sales manager of the Keokuk Gas Service Co. Prior to that he was plant manager at the Joliet Gas Meter Repair Plant.

IRVING S. OLDS, is retiring from the U. S. Steel Corp. and is being succeeded by Benjamin F. Fairless as chairman of the board.

Mr. Fairless, who was named chief executive officer of the corporation, will continue to serve as president.

Following his retirement, Mr. Olds will continue active law practice with a New York firm.

Roger M. Blough, Executive Vice President and Secretary of the corporation, was appointed vice chairman of the board of directors.

NOW AVAILABLE

A complete reprint, under one cover, of Professor S. Konzo's invaluable series of articles —

The

"How, What And Why"

of the New

Winter Air Conditioning Manual

Everyone who is now using or expects to use the new "Code and Manual for the Design and Installation of Warm Air Winter Air Conditioning Systems" will find Professor Konzo's series a source of much practical help in understanding the Code and correctly applying it to actual jobs. In this great series, Professor Konzo not only explains step by step exactly how to use the Code, but, in addition, tells in detail of the research and experience that is behind each step in the suggested procedures.

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unequalled in performance efficiency quality

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STANDARD
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BY MANY
LEADING
FURNACE
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A standard type and size for every hi-boy, low-boy, counter-flow and horizontal furnace of 40,000 to 200,000 Btu/hr rating at bonnet temperature rise up to 100°F. Designed and built for PEAK EFFICIENCY and DEPENDABLE PERFORMANCE. Has these unmatched features... Duomultiblade wheel, statically and dynamically balanced... Heavy-gauge cold-rolled steel wheel for maximum efficiency... One-piece bridge-type motor mount... Selfaligning shock-resistant bearings... Four-point bearing suspension... One-piece bearing assembly.



BLOWER-FILTER UNITS

None better for any warm-air heating plant, or for cooling, ventilating and air-conditioning systems. You can depend on BRUNDAGE Quality and Performance. . . Customer satisfaction. . .

MORE PROFITE

SOUND ENGINEERING AND QUALITY ARE BRUNDAGE TRADITIONS

Please send me free literature on Brundage Blower-Filter Package Units and Series "X" Blower Assemblies. Name

Company Address City

State

Brundage

Blower Specialists Fince 1919

716 N. Park St. Katamano 11, Mich A. L. VEVERKA has been named sales promotion and advertising manager of Follansbee Steel Corp. In his 26 years of service with the firm, he has been instrumental in the promotion of metal roofing, one of the company's major products.

Mr. Veverka will continue as editor of Terne Topics, a paper with a circulation of 30,000 published for sheet metal contractors. In addition, he will be responsible for planning Follansbee's advertising in trade and general publications and for conducting a direct mail program to architects, builders and homeowners.



JOHN A. COE, president of American Brass Co., recently announced the opening of a new \$1,500,000 copper and brass warehouse in Chicago. About 2,000 guests toured the warehouse on opening day.

The new warehouse is said to be the largest and most modernly equipped copper and brass warehouse in the country. It has power tools for cutting to length, slitting, shearing, and sawing. Using new machines, a service is now available for the cutting of metal hose connectors and the assembly of flexible metal hose and fittings. Brass mill scrap can be expeditiously handled.

The air conditioned office adjoining the warehouse is ultra modern in design and conservatively moderate in its interior appointments.

M. J. MURBAY recently joined the Siemon Manufacturing Co., Kansas City, Mo., as vice president and director of sales. Mr. Murray is a veteran of over 20 years in the heating industry starting with Williams Oil-O-Matic at Bloomington, Ill., in 1928. More recently he has been assistant sales manager at Conco Engineering Works, Mendota, Ill., and takes over his new duties after three years at Mt. Hawley Manufacturing Co. as general sales manager.

THOMAS HANCOCK, vice president and sales manager of Trane Co., La Crosse, Wis., has announced new appointments to the following Trane sales offices: Oklahoma City, Walter T. Ritter; Greensboro, N. C., Loy Frank Thompson; Columbus. Ohio, Allen L. Smith; New Orleans, George W Shepherd; Pittsburgh, Walter Lambert, Jr.; Newark, James Gledhill; Detroit, Murray W. Binkley.

The new Trane representatives are recent university



graduates, hold degrees in engineering, and have completed the company's own graduate training program.

CHARLES E. BENNETT, vice president of AGA, has been elected president to succeed the late George F. Mitchell.

Mr. Bennett, who is also president of Manufacturers Light & Heat Co., graduated from the University of Wisconsin with a B. S. in mechanical engineering, entered the public utility field as superintendent of the gas plant for Madison Wisconsin Gas and Electric Co., in Sept. 1915. He was made secretary and treasurer of that company in 1918,

LOWELL B. MEINERZ of Milwaukee, Wis., for the past two years Master Kraft factory representative covering Wisconsin and Minnesota, has been transferred by Harvey-Whipple to cover eastern New York state. Mr. Meinerz has had a broad experience in automatic heating and has many friends throughout the industry. He will locate his home in Hamilton, N. Y.



NEWVILLE HEATING SUPPLY, INC., Royal Oak, Mich., has started in the wholesale business and will distribute products of Internationl'Heater Co. in the Detroit area.

Recently members of Newville Heating Supply, Inc. together with the Michigan representative of International visited the plant and main office at Utica.

Another phase in the continuing expansion program of NUTONE, INC., Cincinnati, was announced here today by R. B. Marple, vice president of western sales.

Mr. Marple said the rapid expansion of the company's west coast business has made it necessary to move warehouse and offices to new and larger quarters in order to give better and more efficient service to the West Coast area.

This 20,000 sq ft addition will be the second expansion of the modern one floor plant which was opened in



Combustion troubles like these—with any fuel—are due largely to insufficient draft.

Even if the chimney is perfect, full natural draft is not established until the entire chimney is heated. Meanwhile, the fire may not get enough axygen to support complete combustion, and troublesome combustion products such as unburned carbon particles, oil vapor and combustible gases, water vapor and fly ash are not carried away.

quickdraft corrects this condition by creating full draft when firing begins. It operates throughout the firing period, but does not "build up" the draft when natural draft is functioning normally.

On Oil-Fired Heating Plants, it eliminates pulsating, hammering, objectionable odors and film, sooting, puffing, explosions.

On Gas-Fired Units, it ends condensation and damp walls: frequently eliminates the need for liners in old chimneys.

On Hand-Fired Coal Furnaces, it prevent putting, sooting, clogging . . . increases efficiency with any grade of hituminous or anthracite coal.

On Stoker-Fired Coal Furnaces, it stops clogging, eliminates smoking back through the worm.

quickdraft is reasonably-priced, easily installed, economical to operate . . . simple. fool-proof . . . vitrous enameled units won't rust or wear out. Does not restrict smoke-pipe opening, even in event of current failure.

Use quickdraft to correct draft problems caused by low, defective and inefficient chimneys. Figure it in new installations and conversions, too, to insure satisfaction. Write for bulletin.



COMPANY

DIVISION OF THE HALL'S SAFE COMPANY, INC.

809D TENTH STREET NE CANTON 5, OHIO





ECONOMITE THE "MIGHTY MITE"

OF CONVERSION GAS BURNERS

Nothing like it on the market! Here, indeed, is an utterly different and better gas burner. Consider these features: Power burner design assures perfect combustion, regardless of natural draft conditions—a proved fuel saver—safe and efficient for down-draft heating plants. The Economite burns so smoothly you can't tell when it's running—no "pop" when the burner goes on and off.

Every Economite is factory-tested on gas and shipped assembled—fully equipped with fool-proof safetys. Simplicity of design and durable construction reduce service to a minimum. Capacities of 70,000 to 500,000 BTU give thorough coverage of the residential field.

DEALERS! You can make real money on the exclusive sales features of the Lo-BLAST Power Gas Conversion Burner. Get the facts—write today,





MID-CONTINENT
METAL PRODUCTS CO.
1960 N. Clybourn Ave., Chicago 14, Ill.

January 1950. The first addition of 25,000 sq ft was started only six months after the plant was completed.

Frank C. Smith, president, Houston Natural Gas Corp., Houston, Texas, was elected vice president of AGA. Mr. Smith has been president of the Houston corporation since 1933 and has been nationally prominent in the gas industry for many years. He is past president of the Southern Gas Association and a member of the board of trustees of the Institute of Gas Technology in Chicago. He helped establish the Institute in 1941 for the purpose of furthering education and research in the gas industry.



WINNERS OF THE RHEEM sales contest. The above group of Robertson Heating Supply Co. dealers is shown at the time they visited Rheem Manufacturing Company's Chicago plant. They travelled to Chicago in a special Pullman car and spent the day touring the plant.

AT THE THIRTEENTH ANNUAL Meeting of the Propeller Fan Manufacturers' Association, officers elected for the ensuing year were E. J. Stone, president; P. T. Finch, vice-president; L. O. Monroe, secretary-treasurer.

Mr. Stone is connected with the Ilg Electric Ventilating Co. and Mr. Finch with the Hunter Fan & Ventilating Co., Inc.

BERNARD C. LINDBERG, president of Carlin Co., Wethersfield, Conn., manufacturers of oil burners, announced the appointment of Bert Watling as sales manager.

Mr. Watling, who is well-known in the oil burner field, was formerly sales manager of Silent Glow Oil Burner Corp., and has also been associated with Iron Fireman Corp., Cleveland. He is a member of the Hartford Sales Executives Club and resides with his family in Springfield, Mass.

FOLLANSBEE STEEL CORP., Pittsburgh, has named Norman Johnson manager of its Sheet Metal Specialty Div. at Follansbee, W. Va. He will be in charge of manufacturing, purchasing and engineering for the division.

Mr. Johnson was formerly factory manager at the national enameling and stamping plant of Granite City Steel Co., Granite City, Ill.

HARVEY-WHIPPLE, INC., has announced the appointment of Harry M. Dronsfield as factory representative covering western New York State and western Pennsylvania.

Mr. Dronsfield comes to Harvey-Whipple from one of the nation's largest furnace manufacturers, where he was

Selling REX AIRATE Fans



In the Air Controls line for 1952 there are fans to meet your every price and performance need—twenty-eight models, six types, nine sizes of REX Airate air cooling, attic, exhaust, furnace, window and ventilating fans.

And, you can make money on all of them. Your customers see 'em, like 'em, buy 'em—so selling REX Airate fans is a breeze. Start this season on an all-year fan merchandising campaign with the complete REX Airate line and watch your fan profits climb.

See your Rex Airate distributor or write today for complete details on the fans that know no season!

AIR CONTROLS, INC.

Division of the Cleveland Heater Co.

2310 SUPERIOR AVENUE • CLEVELAND, OHIO



You strive for inventory turnover so that your bookkeeper can put those important black figures in her ledger. That is another reason why Reznor gas unit heaters are good business for you.

"The World's Largest-Selling Gas Unit Heater" does for you what the phrase implies. More Reznors have been sold . . . more have been bought . . . and, at a faster rate. Reznor dealers turn inventory over and make more profit.

Reznor's 120 million ad impression schedule pre-sells for you. Selling is made easier. Reznors install fast and give you added working time from your mechanics.

As important—Reznor quality and performance are equipment requirements your customers want. Reznor unit heating fits the contemporary building trend best. It is good customer relations to sell Reznors.

USED WITH NATURAL, MANUFACTURED AND LP GASES

REZNOR WORLD'S LARGEST-SELLING GAS UNIT HEATER

MECHANIZED HEATING

A completely automatic, packaged unit in sizes from 25,000 to 200,000 BTU. Installed singly or in multiples as required. High efficiency due to balanced engineering of heat production, air movement and controls. Both floor and suspended models available.



State.

SEE SWEET'S CATALOG FILE

REZNOR MANUFACTURING CO.

40 UNION ST. . MERCER, PENNA.

Zone

Sand me 20-page cetalog in full color

Name

Firm

Address

Get Into The Basement While Others Are Still Ringing The Doorbell

The powerful new Red Streak Model SH gives you the means of handling more business at a bigger profit. Super cleaning uncovers the need for repairs and replacements, in many cases, new plants.

The Red Streak with its special tools enables you to clean furnaces hot or cold with speed and ease. Chimney cleaning tools are standard equipment, and work from the basement. No dangerous roof-top climbing with a Super.

The Model SH is equipped for both wet and dry pick-up. Cleans debris from flooded basements, boiler tubes, air filters. Quickly and easily converted to a blower.

• New Non-Clog Fifter Bag •

The new Supertex heavy duty suction cleaner filter bag is mayle of a special porous fabric with high resistance to cloging, and destructive action of acids and chemicals in coal and oil soot and other dusts. These form a fragile film on the inside surface of the Supertex bag. This film breaks down and falls, leaving the pores of the bag material unobstructed and the fabric undamaged. It is supplied on the Super Red Streak Model SH Heating Plant Cleaner at slight additional cost. It also is sold separately for modernizing old cleaners. The price is \$19.50.

Your wholesaler can give you complete data on the Super Red Streak Model SH. Or write us.



Send for the FREE SUPER PLAN BOOK. It tells you how to build a profitable furnace cleaning business.

Super Red Streak Model SH

For both wet and dry and hot and cold cleaning. Equipped with Supertex Filter Bag. Note that Supertex bag is not over-size but of standard compact size.

NATIONAL SUPER SERVICE CO., INC. 1944 N. 13th St. Toledo 2, Ohio

Sales and Service in Principal Cities

In Canada: Plant Maintonance Equipment Co., Toronto and Vancouver



factory field representative for 15 years. He is well acquainted with automatic heating dealers in Pennsylvania and New York State having covered this area prior to his new appointment.

ROBERT H. KRIEBLE has been appointed engineer in charge of Thomas Laboratory at Lynn River Works of General Electric Co. Before his promotion, he was in charge of the laboratory's chemical and insulation section.

Dr. Krieble has been a G-E employee since 1943 and has worked in the silicone field of the company's research laboratory. He later became liaison representative in chemistry between the research laboratory and the operating departments of the company. Prior to joining G-E, he was a chemical engineer for Socony Vacuum Co.



OVER 2300 DEALERS, their key personnel, and families were entertained at Robertson Heating & Supply Co.'s two day home show in Alliance, Ohio recently. Some of the features of the show were a continuous buffet luncheon and a drawing for door prizes.

The show was made up of 40 booths displaying merchandise distributed by the Robertson Co. Actual manufacturer's samples of furnace supplies, roofing, and other materials as presented at the Chicago and New York trade shows were on display.

The show which was open to the general public the second day gave the home owner an opportunity to see the latest home equipment. All "interest cards" signed by visitors were turned over to dealers.

GEORGE CROTHERS' appointment as manager of the new Toronto branch of General Controls Co. was recently announced by J. F. Ray, vice president of sales. Mr. Crothers has had many years experience in the industrial equipment field. The new branch office under his supervision will enable the company to serve customers more closely in the Toronto area. He will handle sales, engineering and service for the company's extensive line of automatic controls.

HARRY E. LEWIS has been appointed executive director of the Industrial Mineral Wool Institute. The appointment was announced by Glen J. Christner, president of the association.

Mr. Lewis who has been an active member of the

INSIDE Story

You'll make <u>EASIER</u> sales, <u>more</u> sales when you tell the inside story of International Economy® Oil or Gas Units



Heating Element

Heavy 14-Gauge Steel Welded for strength as integral unit No cement joint—no bolts in inner casing

Firebrick door and base reinforced with steel rods High-efficiency chrome steel combustion chamber Your customers can see the outside features of International Economy Gas or Oil Units . . . the heavy 20-gauge steel cabinets, the handsome, lifetime enamel finish and the modern design that fits proudly into any home. But when you tell them the inside story—and show them the exclusive International advantages—you're really going to sell them!

Show them the rugged 14-gauge steel heating element—welded with no inside joints to leak. Point out that all air is blosm—not drawn—over the heating surfaces. Let them see the efficient chrome steel combustion chamber—learn how it may be installed or removed in seconds. Mention the steel reinforcing rods buried in the firebrick door and base . . . that every unit is easily convertible from oil to gas . . .

Get the Inside Story . . . it's a profit story for you. See your International distributor or write us today.

110 years of heating experience at your service .

INTERNATIONAL HEATER COMPANY

UTICA 2, NEW YORK

WESTERN OFFICE AND WAREHOUSE. 1933 WENTWORTH AVE., CHICAGO 16, ILL.



If you are using or contemplating the use of heat-resisting steels for combus-

steels.

Whether you are a large or small user of these steels, our steel making facilities can offer exceptional service by especially shearing to your specified combustion chamber steel blanks, or multiples thereof.

tion chambers for oil burner

furnaces, we are specialists in producing these types of

- More quiet burner operation
- 2 Cleaner heat
- 3 Better temperature control
- 4 Considerable savings

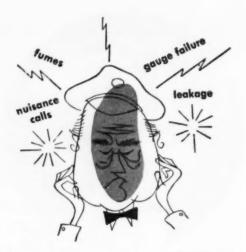




Ingersoll STEEL DIVISION

SOEG-WARNER CORPORATION

310 South Michigan Avenue, Chicage 4, Illinois Plant: New Castle, Indiana



Cure these headaches

with
Rochester
"dual-dial"

GAUGES



One sure way to avoid the headaches caused by faulty gauges is to insist on rugged Rochester "DUAL-DIALS." Their solid, leakproof construction eliminates unnecessary service calls, gives long-life dependability and assures complete customer satisfaction.



Permanent magnetic

indication

listed

Underwriters'

Why not profit by these outstanding "Dual-Dial" features

- · Solid head
- · Pressure tight
- Easy to install
- · Easy to read
- to install •
- Over 2½ million "Dual-Dials" have already proved their dependability in service. Stocked by leading wholesalers for all standard basement oil burner storage tanks with 1½" and 2" flanges. ORDER TODAY? Rochester Manufacturing Company, Inc., 66 Rockwood Street, Rochester, N. Y.



Technical Committee since the Institute was founded in 1941, is a registered engineer and is affiliated with ASHVE, ASRE, ASTM, and other technical groups interested in thermal insulation. His new headquarters are in the institute's offices in New York.

Scott H. Patterson has been appointed branch manager of American Brass Company's Buffalo, N. Y. plant, according to an announcement by the firm's president, John A. Goe.

Mr. Patterson will move to Buffalo to take over the duties of Justice Lockwood, who was recently appointed vice president of sales for the company.

FRANK GIBBONS, sales manager of Viking Air Conditioning Corp., announces the appointment of three new manufacturers' representatives to handle Viking window and attic fans.

Robert Flanagan, who recently organized his own firm of manufacturers' representatives, will cover northern Illinois and Chicago. Edward T. Taber, who also heads his own sales agency, will cover Iowa and Nebraska. And Albert Schultz who will represent Viking in New York State outside New York City.

C. S. STACKPOLE, vice president of Eureka Williams Corp., Bloomington, III., forecast another good selling year in the automatic residential heating field in a talk at a recent regional meeting of dealers in Bloomington.

Mr. Stackpole, who heads the automatic oil and gas



144



CENTRAL HEATERS



Forced Air

Gas Fired

Fully Automatic

Packaged Unit

John Zink Central Heaters are complete fully automatic central heating plants that can be easily installed in attic, basement, utility room or closet.

High heat output but small packaged size, sturdy case construction and, of course, equipped with a John Zink Burner, these AGA approved heaters meet all requirements.

heaters meet all requirements.

Small homes can now have big heating plant comfort but not the expense.

VERTICAL or HORIZONTAL TYPES

UNIT HEATERS

Attractive Quiet Safe Efficient and easy to install

Where heating requirements dictate a suspended heater you can't beat a John Zink Gas-Fired Unit Heater — less space and size for heat output.



A complete packaged unit, fully automatic operation and safety pilot equipped are features of these heaters that are A.G.A. approved for all standard fuel gases.

Write for descriptive information and specifications.

JOHN ZINK CO. 4401 So. Peoria, TULSA, OKLA.





heating unit division, said he based his views on observation of the aggressive advertising and promotion efforts of dealers the country over. This is the year of the salesman and never is the salesman more important in the automatic heating field than when the market is a buyer's market. Mr. Stackpole added that last year was the third best year on record for residential sales of oil heat installations.

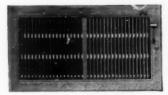
Eureka Williams is producing 41 models of five basic heating units.

BURT MANUFACTURING Co., Akron, Ohio, manufacturers of roof ventilators, louvers, exhaust heads, and sheet metal specialties, recently celebrated its golden anniversary.

- C. A. Palmer, president, announced an extensive expansion and remodeling program initiated early this year will be completed in 1953.
- D. B. Paquin has recently been elected vice president of White-Rodgers Electric Co., St. Louis, Mo. His responsibilities include purchasing, production control, machine accounting, and statistical functions. Mr. Paquin previously was connected with A. T. Kearney Co., Chicago management and industrial consulting engineers.
- J. F. STENGLEIN, named sales manager of Canton Stoker Corp., Canton. Chio, formerly their Detroit representative, brings a background of 23 years stoker experience to his new position.
 - J. C. Fosselman will join Mr. Stenglein as assistant



A Complete Line for all Your Needs



No. 4432 register with flexible fins and multi-leaves valve.

Here are some improved and new designs in Auer registers, both for air conditioning and for perimeter systems. The Fig. DRP fabricated floor registers are ideal for perimeter jobs. They have adjustable cross bars. Fig. DRP 2½ x 14 has single valve, and Fig. DRP has multi-louvres which can be set for desired volume and direction and locked in place by a balancing adjustment device. Made in proper sizes for perimeter heating requirements, with intakes to match.

Write for new Aver Register Book 52 on all models, also Bulletin on perforated grilles.



No. 7032 register with flexible fins and single valve.





THE AUER REGISTER CO., 6600 CLEMENT Ave., Cleveland 5, Ohio.
Canadian Distributor, Marchand Furnace, Ltd., Tilbury, Ont.



REGISTERS

& GRILLES for AIR CONDITIONING & GRAVITY

Manufacturers' Agents

Are you interested in securing additional lines?

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their industrial large building heating, piping and air conditioning products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

American Artisan

6 N. Michigan Ave.

Chicago 2, Ill.

SUSPENDED - SPECIAL APPLICATION

OIL FIRED - FORCED AIR FURNACE h_y DELTA HEATING CORPORATION





FACTORY ASSEMBLED — READY FOR INSTALLATION
SUSPENDED — MODELS SU-75, SU-110

Excellent for special-purpose heating applications — attic, low-basement, ceiling and underneath the floor. Two sizes —75,000 and 110,000 8TU/HR. Factory assembled with hanger posts or base flange-stands. Ask your wholesaler for DELTA'S LOW PRICE or write for complete details.

DELTA HEATING CORPORATION

TRENTON B. NEW JERSEY

Midco Register Corp. 1059 Grand Ave. St. Paul, Minn.



Registers — Grilles — Floor Faces — Floor Registers — Gravity Registers. The complete quality line for all winter and summer air conditioning.

Send catalog to

Address
City Zone State

sales manager. As a team their first moves for the corporation will be to establish wider district sales and service facilities.

LAWRENCE R. CARNEY has been appointed manager of the Los Angeles office of Coleman Co., Inc., according to Sheldon Coleman, president. Mr. Carney was formerly sales manager of the Los Angeles branch office.

Kenneth G. MacCart, president of Petroleum Heat & Power Co., Stamford, Conn. and William J. O'Neil. chairman of the board of Iron Fireman Manufacturing Co., Cleveland, Ohio, has announced that Iron Fireman has purchased the Petro oil burner business. The entire line of Petro domestic, commercial and industrial oil burners and oil heating equipment will be manufactured in Iron Fireman's Cleveland plant.

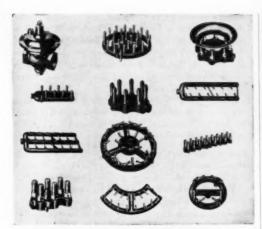
Headquarters of Petro will be moved to Cleveland, becoming Petro Div. of Iron Fireman Mfg. Co.

J. R. Crews has been appointed sales manager of Iron Firemen Petro Div. and will have charge of field sales operations under the direction of C. T. Burg. Iron Fireman vice president in charge of sales. Mr. Crews has been active in Petro for many years.

Petro equipment will be sold through jobbers, and through retail branches of Petroleum Heat & Power Co. No Petro equipment will be sold through Iron Fireman dealers or branches, and no Iron Fireman equipment will be sold through the Petro sales organization.



WHITNEY METAL TOOL CO.



BARBER

Has Long Been

"Burner Headquarters"

for Gas Appliance Makers

Every phase of burner application has been thoroughly studied by Barber experts, in 30 years of service to the appliance industry. Since the real key to appliance performance is the burner itself, every care must be taken to see that the entire design — size, shape, capacity, type of jets, and all other features — are correct for the purpose and the type of gas to be used. Only competent engineers, conscientious inspectors and testers, and skilled craftsmen can do this. As a result, Barber has become the first name in burners, and the adoption of these units has proved a basic principle of good design in the appliance field.

We are prepared to help you solve any burner problem, for any kind of gas. Particularly for industrial or commercial applications, where gas is used in processing the product made or handled, and where difficult or unusual problems confront the gas equipment installer — Barber can be of definite assistance. Nothing better can be said of any appliance than: "It's equipped with a Barber Burner."

Ask for complete Catalog No. 110 showing scores of typical units—also Conversion Burners and Controls.

THE BARBER GAS BURNER CO.

3708 Superior Avenue

Cleveland 14, Ohio





Ask The W. B. Connor Engineering Corporation how to balance an installation equipped with their Kno-Draft diffusers, and they'll tell you... measure the actual air delivery—precisely and quickly—with an Alnor Velometer.

Balancing a Kno-Draft equipped installation is a fast and accurate process when using an Alnor Velometer. A few simple readings of the instrument and a twist of the wrist are all that is required to adjust the air flow to the desired amount.

The Velometer is the only instantaneous, direct-reading air velocity meter—accurate in all ranges, from high to low—compact, portable, easy to understand and use. Wide assortment of jets and fittings makes this precision instrument ideally suited for all air velocity measurement.

For your air measurement needs, get an Alnor Velometer. You'll save time and money wasted in balancing air distribution on your next installation. If you'd like a copy of the instructions on balancing Kno-Draft diffusers with the Alnor Velometer, just send the coupon below.

Illinois Testing Lab Room 538, 420 N. Chicago 10, III.					
Send Kno-Draft Bo			ms		
Namo	******	*****	*******		
Company	******	******			
Address		*****			
City			24	oneSta	
Cary					



PRECISION INSTRUMENTS FOR EVERY INDUSTRY





Humidifier CAPACITY is Important!

Monmouth does not offer ONE size humidifier for ALL heating units. It provides an adequate range of sizes and capacities to do the job properly, for the correct size pan and the correct number of plates are a necessity for efficient operation. This is especially vital with modern automatic forced air heat, with relatively low bonnet temperature, where you must have sufficient diffusion to convey moisture to the volume of air handled. When you install the proper size Monmouth, your job is not half done, but ALL done.

Our Complete line includes various Flotrol models, the No. 510 for your smaller jobs, also the economical Micro-Feed drip feed unit, and the Monmouth gas-fired Humidity Conditioner for all radiator systems. Write for descriptive Bulletins.

THE CLEVELAND HUMIDIFIER CO.

7802 Wade Park Avenue

Cleveland 3, Ohio

MONMOUTH HUMIDIFIERS

EVANS PRODUCTS Co., Plymouth, Mich., has announced the appointment of T. R. Banks, Charlotte, N. C., as district sales manager of its Heating & Appliance Div. Mr. Bank's territory will include the area around the District of Columbia. He will direct the distribution activities of the Evans' line of oil and gas-fired home heaters, floor furnaces and water heaters.

Before taking over his duties for Evans, Mr. Banks has been with Southern Radio Corp., and Williams & Shelton Company, For 17 years, he operated his own retail appliance business in Charlotte.

PERFECTION STOVE Co., Cleveland, Ohio, announces the appointment of the Shield Co. Inc., of Forth Worth as distributor for central, west and southwest Texas.

Shield Co. which has operated in Texas for 27 years will handle Perfection's gas and oil space heaters. The company is headed by W. W. Slaughter, president; E. C. Miller, vice president and general manager; Richard Owens, secretary treasurer; and C. V. Cotton, sales manager.

BENJAMIN WOLFF & Co., Chicago metals distributors, has announced the start on work for a large new warehouse in the Melrose Park district. According to Burton L. Wolff, president, the new warehouse is to cost a million and a half when completed. Office space is being provided in an office building connected to the main warehouse structure. Construction throughout is of steel with brick walls.



Beverly SHEAR MFG. CO.
3020 W. IIIII STREET . CHICAGO 43. ILLINOIS



Made to Your Specifications

Accurately rolled in every dimension for air conditioning and fan installations. Also used for reinforcing tanks, make stacks, and thousands of other uses.

Other Rings Rolled or Rolled and Punched to specification
—Channels, Tees, Rods, Flats, Pipe, Tube.
Rolled and Punched to Specification or Stock Sizes. Write for Stock Size List, Prices and Discounts.

National **Metal Fabricators**

2136 So. Sawyer Ave.

Chicago 23, III.

Majestic INDOOR INCINERATOR

Mes. Buyer likes this! Troublesome trash literally vanishes into thin air with a Majestic Indoor Incinerator. Throw in wet and dry garbage, waste

paper, floor sweepings, empty cartons-all that hardto-dispose-of household refuse. When filled, light it with a match and forget it. No added fuel necessary. Unique downdraft assures complete burning. Easy to install - merely taps into furnace flue without affecting furnace efficiency. Best of all, it's guaranteed! Other fuelless and gas fired models available.

Write today giving the name of your distributor.

The *Majestic* Company, Inc.

110-A Erie Street

Huntington, Indiana

Model 30

Nationally advertised building products over 45 years

FITTINGS FOR YOU

Nope, we don't make fittings to please ourselves or to please your customers . . . we make 'em to please YOU! Our years of experience have proved beyond any doubt that the quickest way to attain a good, solid reputation is to keep on making the best product ALL the time. That way we know you'll keep coming back to us for fittings that result in neater and faster installations. . and that will help you reduce your labor costs

If you're not a Youngstown customer now, then let us show you why it will be to your advantage to always use Youngstown...the fittings that really FIT!

YOUNGSTOWN FURNACE CO.

627 Marshall Street

Youngstown, Ohlo

MAKE MORE SALES WITH "CONN. STATE" FURNACES

When space is at a premium the 'Conn, State' Lowboy can be installed in any base-ment or utility room (see dimensions at right!.
feature alone will save a
sales for you! In addi
check these features:

Easy to Clean . . .

Burner does not have to be removed to clean furnace. Just loosen four bolts and take out convenient access panel. Burner may be Bange-mounted or con-

20-Year Guarantee . . .

Conn. State Furnaces are guaranteed for (wenty years (furnace only). You can sell Conn. State Furnaces with confidence. Write for details and specifications of the complete Conn. State line.



Fits Anywhere!

Dimensions of 'Conn. State' 100,000 BIU

Height: 44" Width: 20" Length: 52" Height to center of flue: 36" Shipped fully as sembled; easy to mitall

Some Territories Still Available. Write or Wire Todayi

Connecticut State Furnace Co.

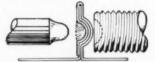
342 Kossuth Street

Bridgeport, Conn.

WHITNEY LEVER PUNCHES



This Tool is especially adapted for Button Punching or for Templet work. Punch will strip where hundle cannot be opened to 90 degrees. When used as a regular punch, the capacity is $\frac{1}{\sqrt{a}}$ hole through $3/16^\circ$ iron. Stock size $\frac{1}{\sqrt{a}}$ to 9.32°.



These punches are often called Tip Punches, and are used to fasten standing seams without making a hole, by simply indenting the three thicknesses of metal.



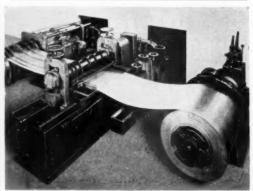


CONVINCED THAT THE FUTURE holds unlimited opportunities for the warm air heating industry, and that business will go to those who do an outstanding selling job, Prat-Daniel Corp. recently called in its Thermobloc distributor organization for a two-day meeting at its South Norwalk, Conn. plant. The management feels that the character of selling is changing and that the order writer is on the way out, with his place being filled by the industrial specialist, a man who can analyze problems for his customers and come up with the correct answers.



In order that the distributors might be in a position to quote on any heating job, Thermobloc has added to its line the new Model 2,000 Thermobloc with an output capacity of 2,000,000 Btu per hour.

The new model was presented to distributors in a



". . . we're looking for slitting business, too!

Complete equipment for precision slitting and recoiling; also decoiling, roller leveling and cutting to lengths. METALS — 14 gauge or lighter — any width up to 36".

Write us for details . . . prompt attention is guaranteed.

"Made-Rite" Co., Inc.

Manufacturers & Suppliers Furnaces — Pipe and Fittings

10th and Monroe St. Newport, Ky.

"370 SPECIAL" RED OXIDE PAINT CUTS YOUR SHEET METAL PAINTING COSTS BECAUSE . . .

- 1. It covers more than 5 squares per gallon.
- 2. It goes on easily and quickly.
- 3. It covers and hides well, one coat.
- 4. It sets up in four or five hours so that sudden rains will not wash it off.

Order "370 SPECIAL" from your distributor.

THOMPSON & COMPANY 1085 Allegheny Avenue Oakmont, Pa. Established 1847



PERFORATING

5649 FILLMORE ST., CHICAGO 44, ILLINOIS 114 LIBERTY ST., NEW YORK &, N. Y.

SELL MORE OIL BURNERS

SERVICING



INCREASE SALES & UNIT PROFIT

Radiant performance is equal to the highest price burner-yet Radiant burners are priced to meet competition.



PLUS

- · Low Upkeep
- **Factory Guarantee**
- National Distribution in Protected Territories
 Easy Installation with minimum servicing

Models Equipped with Shell Designed Combustion Head.

Write for The Biggest Oil Burner Sales Story Todayl



RADIANT UTILITIES CORP. 8817 18th Ave., Brooklyn 14, N.Y.



THE FERDINAND DIECKMANN CO. ESTABLISHED 1871

P.O. STATION B

CINCINNATI 22, OHIO

THE RIGHT SHEARS FOR ANY CUTTING JOB

MARSHALLTOWN



ROTARY THROATLESS SHEARS

CUTS ALL SHAPES-SIZES

- QUICKER
 - EASIER
 - FASTER

Here's a shears that's right for every job. Speedy—efficient. Cuts up to ${}^{1}\!\!/_4$ inch stock — speed to 6 ft, per minute. Excellent for irregular cutting or straight splitting. Available in hand operated or motorised models. Prompt shipment. Send today for special illustrated bulletin.

MARSHALLTOWN MFG. CO.
Marshalltown. lowa

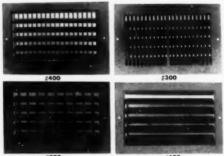
dramatic manner. Part of the Thermobloc factory was partitioned off and decorated to create the illusion of a theater. The new model was concealed behind a bill-board type case, at the front of the auditorium. The unveiling ceremonies consisted of removing the bill-board cover, which exposed the unit. Following the official presentation, distributors were encouraged to make a close-up personal inspection and ask questions. When the group adjourned to another part of the shop, the outer casing of the new model was removed by mechanics, so that later in the day distributors could have an opportunity of examining the inside arrangements.

JOHN A. RORINSON has been named sales manager of the Eastern and Mid-Atlantic regions for the Industrial Div. of Minneapolis-Honeywell Regulator Co., it was recently announced by W. H. Steinkamp, general sales manager.

Mr. Steinkamp also announced the appointment of Joseph J. Matulis as industrial manager for the midwest region to succeed Robinson and the promotion of C. G. Behnke to industrial manager of the Chicago branch office. Robinson succeeds O. B. Wilson, recently named field sales manager.

EDWIN P. SHORT has joined the sales organization of John J. Nesbitt, Inc. Philadelphia manufacturer of heating and ventilating equipment. He will cover the Philadelphia and Wilmington, Del. areas for the company. Mr. Short was formerly associated with Thatcher Furnace.

See Your Jobber



#200 #100 Many thewands of the above types used in housing projects. Lowest in price, more free area.

The Air-O-Vane ceiling diffuser. Also made in type D-R with positive shut-off central (Patents Pending) made in all sizes.

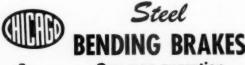


Greatest in free area of any celling diffuser and lewest in cost. Write for cetalogue or see your jobber.

AIR-O-VANE CEILING DIFFUSER WRITE FOR CATALOGUE TO -



19 EAST RILLITO ST. TUCSON, ARIZONA





CHICAGO hand-operated bending brakes are available in a variety of standard sizes ranging from 3 to 12 feet in capacities up to 12-gauge sheet metal.

also

CHICAGO Portable Hand Brakes
CHICAGO Box and Pan Brakes

Full Particulars upon Request

MANUFACTURING COMPANY
7404 5. Learnis Blyd., Chicago 36, Illinois

CHICAGO

s. teemis eres., Carcego Se, Illinois

MILTON SHEET METAL MACHINERY SPECIALISTS

DELIVERY ON PEXTO, CHICAGO BRAKES, DIACRO, ROUSSELLE PRESSES, KIDDER, WHITNEY, ROTEX PUNCHES, REX WELDERS WE CARRY A COMPLETE STOCK OF NEW & USED HAND & POWER MACHINERY.

WE STOCK PUNCHES & DIES & ADAPTERS FOR ALL PRESSES & BRAKE DIES, SHEAR BLADES & SPOT WELDER-TIPS & HAND TOOLS.

MILTON EQUIPMENT COMPANY

N.E. COR. 4th & Race St.

Phila, 6, Pa.





Look Better — Last Longer

Superior workmanship and finish in heavy-gauge metal assures installations of lasting beauty. Most designs stamped in any thickness, up to one-fourth inch, from any metal. Catalog No. 36 illustrates all designs and gives complete working data. Free on request.

Diamond Manufacturing Co.





Made in sizes 4" and 5" Galvanized Steel #28 and #26

Packed 3 dozen per carton half right and half left hand. Sold thru leading jobbers. everywhere

Manufactured by

BERGER BROS. COMPANY Philadelphia 6, Pa. 229-237 Arch Street

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Is the quick, economical way to find what you're looking for. Check the classified page each and every issue for real bargains and hard to find items. It's a quick and sensible means too, of disposing of tools, equipment, and anything else for which you no longer have use. Check the classified page for rates.

MAKE AUTOMATIC HEAT INSTALLATIONS



COMPLETE! INSTALL

THE PATENTED

HEAT - LOCK

NATIONAL FUEL CONSERVATION CO., INC.

BRAUER

REPAIR PARTS for all FURNACES **BOILERS, STOVES * Guaranteed to FIT**

A. G. BRAUER Supply Co.

2100 Washington Ave.

St. Louis, Mo.

RDM

The IMPROVED Compound Lever Shears



ALL-ALLOY No. 2 cuts up to 1/4" steel plate. ALL ALLOY No. I cuts up to No. 11 gauge strip or sheet

BREMIL MANUFACTURING CO.

1800 Pittsburgh Avenue

ERIE, PA.

Big Time and Money Savers for YOU! LOCKFORMERS

- Cut Over-All Fabrication Costs in Half.
- Make Pittsburghs 13 Times as Fest es you Can Make them on a Hand Bend-ing Brake. Pay for Themselves Quickly Out of the Extra Profits each one Earns.
 - ALL MODELS IN STOCK FOR

Easy edgers and power flangers also available for immediate shipment.

Send for illustrated folder and more information about this and other sheet motal working equipment.

WARD MACHINERY CO.

SER W WASHINGTON BLVD

CHICAGO 6. ILLINOIS

DON'T JUST BAFFLE! GET SWIRLING ACTION

the facts, clin



ZEH COMPANY INC., PASSAIC, N.J.

ORNAMENTS



STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N. Y.

Sodering Aluminum is easy

WRITE TODAY FOR FREE SAMPLES

rmanent aluminum sodering is made simple and easy with AL LEN Alumi-Soder. Complete in itself, flux and soder are combined in exactly the right proportion in convenient

"handy-to-use

stick



B. ALLEN CO. INC. 6702 Bryn Mawr Chicago 31, III.

HEAT LOSS CALCULATOR



EASY TO USE . GIVES FAST ANSWERS!

Figures every conceivable answer needed by dealers of residential heating equipment. Thousands of satisfied users all over U.S.

The Climatemaker is a precisio uilt non-logarithmic slide rule used by contractors over 18 years. Saves time in planning residential heating systems. Book tells use in easy steps Wall construction factors included, Send cash, check or money orde for \$15 to Climatemaker, Dept. 10 Box 378, Bloomington, Ill. Clip this ad.

Conveights in U.S. A. & G

NINGARA MACHINE AND TOOL WORKS, Buffalo, N.Y. manufacturers of presses, shears and other sheet metal working machines and tools announces the opening of a Philadelphia district sales office in suburban Philadelphia at 50 E. Wynnewood Road, Wynnewood, Pa. Joseph J. Ortalli has been appointed district manager. O. R. HALBERG has been appointed sales representative for Delta Heating Corp., Trenton, N. J. Halberg will cover the metropolitan New York area and Long Island from his office in Brooklyn. Halberg has been associated with the heating industry for over 20 years. In addition to Delta, Halberg represents Sampsel Time Controls, McQuay, Inc., Skidmore Corp., and Thermolock. Inc.

ADAMS SALES Co., Waterloo, Iowa, has been appointed sales representative for the Mor-Sun furnace division of Morrison Steel Products, Inc., Buffalo, it was announced recently by John K. Farrar, acting sales manager. The territory covered by the Adams Sales Co., includes Iowa, Nebraska, Minnesota, North Dakota, South Dakota, and northwest Illinois.

The Adams Sales Co. represents a small group of the nation's leading manufacturers and has developed and built an organization of more than 600 highly rated accounts. Their salesmen contact all accounts in the principal trading centers every thirty days and in the smaller towns and cities every sixty days. Frequent sales meetings are held with jobber salesmen as well as with floor salesmen.

ADAMS

Sizes from 3 to 18 inches



Diamond Smoke Pipe Damper

Buy Adams Known Quality

THE ADAMS COMPANY

Bridge Street • Established 1883 • Dubuque, Iowa

Solve any louver problem with Swartwout



A louver for any industrial or commercial building

Unusual size range enables you to fill any opening with equal-size louver units. Weather-tight overlapping blades. Adjustable or fixed. Heavy duty construction. Write for Bulletin 3391.

The Swartwest Co., 18511 Euclid Ave., Cleveland 12, 0.

"CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy today to the address below.

KEENEY PUBLISHING COMPANY

6 No. Michigan Avenue

Chicago 2, III.

√ Checkyour needs . . .

Personnel

Equipment Sales

Equipment Needs

Manufacturers Agents

Lines, etc.

Whatever your needs in any of the above classifications..., you can solve them quickly with a classified advertisement. The space rates are reasonable and results are quick. Closing date— the twentieth of the month preceding issue.

CLASSIFIED ADVERTISING

Classified Section: Rates for classified advertising are 10 cents for each word, including heading and address. One inch \$5.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order.

Wanted . . .

WANTED: Shearing any amount — all sizes Galvanized, cold and hot rolled aluminum, Stainless and copper 6" minimum width 36" minimum length, uniform quantities. Gauges from 16 to 36 inclusive.

Los Angeles Sheet Metal Mtg. Co. 001-003 East 9th Street, Los Angeles 21, Calif. Transty 4713

Lines Wanted . . .

MANUFACTURERS. ATTENTION: Experienced wholesale heating salesman wants lines as manufacturer's agent. Twenty years contact with Detroit and Michigan heating contractors. Prometion and coverage guaranteed. Dearne line of oil, gas, coal, forced air furnaces, heating accessories, metal shop machinery, and tools. Address D. M. Kaefer, 3049 E. Grand Boulevard, Detroit Z. Michigan.

For Sale . . .

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